

# Public Health and Emergency Management

June 23 & 24, 2010

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Commissioner

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Department for Public Health



# Agenda

- Role of Public Health in Emergency Preparedness and Response
  - Recent Examples:
    - Anthrax
    - SARS
    - Katrina and Rita
    - Gustav
    - Ice Storm
    - H1N1 Pandemic



# Public Health

Prevent. Promote. Protect.

Cabinet for Health and Family Services



# Public Health Across the Years

- 1850-1950 Focused on Public Health
  - Sanitation
  - Water and Food
  - Infectious Diseases
- 1950-2001 Public Health->Personal Health
  - Safe Water and Food
  - Building Codes (sewer/septic systems)
  - Better Control of Tetanus, Polio, TB, etc.
  - Medicaid Funding->"Safety Net" provider for individual services

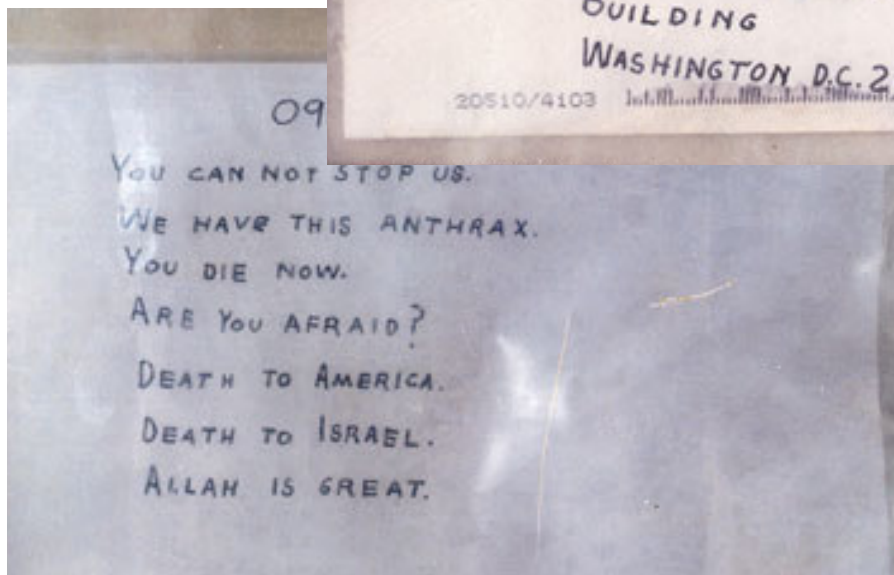
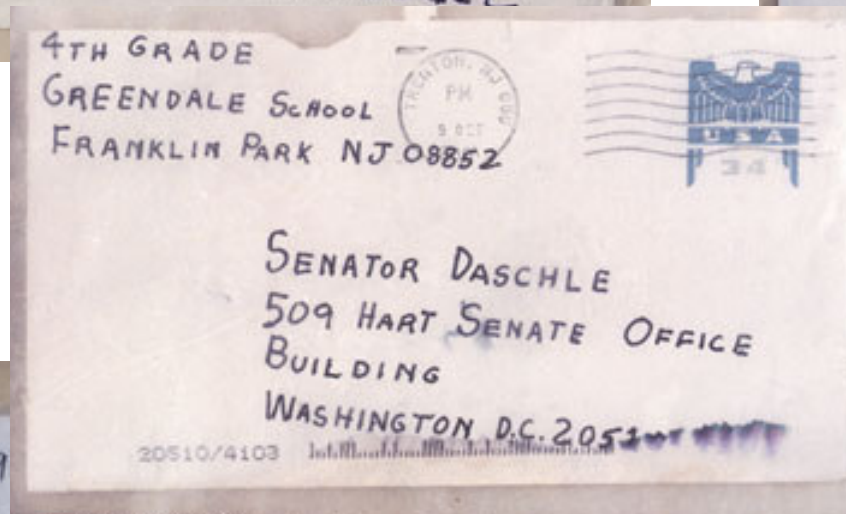
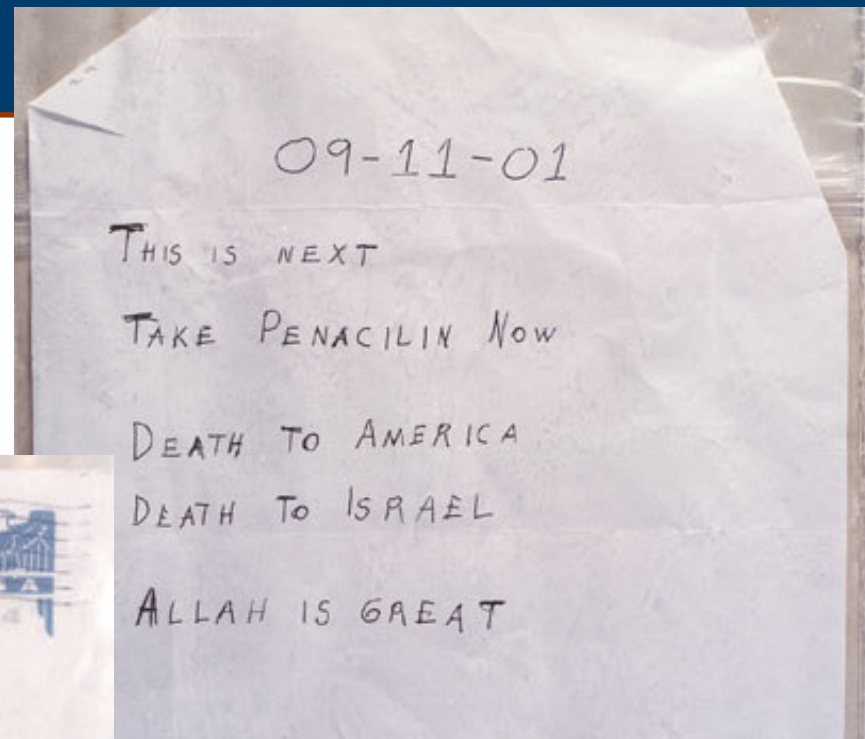
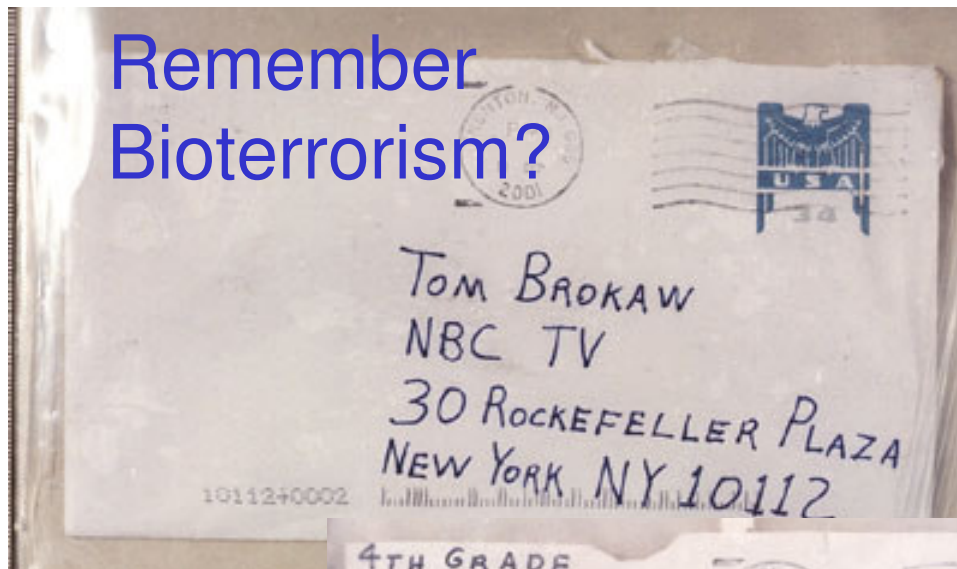
# Public Health's Traditional Role

- Natural Disease Outbreaks
  - Consequence Management
    - » Rabies
    - » Meningitis
    - » STD (e.g. HIV)
- Natural Disaster Response
  - Consequence Management
    - » Flood
    - » Tornado
- WMD
  - Threat was theoretical in nature
  - Occasional Table top exercises

Fall 2001



# Remember Bioterrorism?



- October 2001
- 7 month old infant with Anthrax



# ANTHRAX IN THE US 2001

- Locations: FL, NY, DC, NJ, CT, VA
- Mechanism: Via the mail (4 letters positive)
- Infections: 22 cases confirmed
  - Cutaneous: 12 (0 fatalities)
  - Inhalation: 10 (4 fatalities)
  - + 6 additional suspected cases
- Prophylaxis
  - Initiated: ~32,000

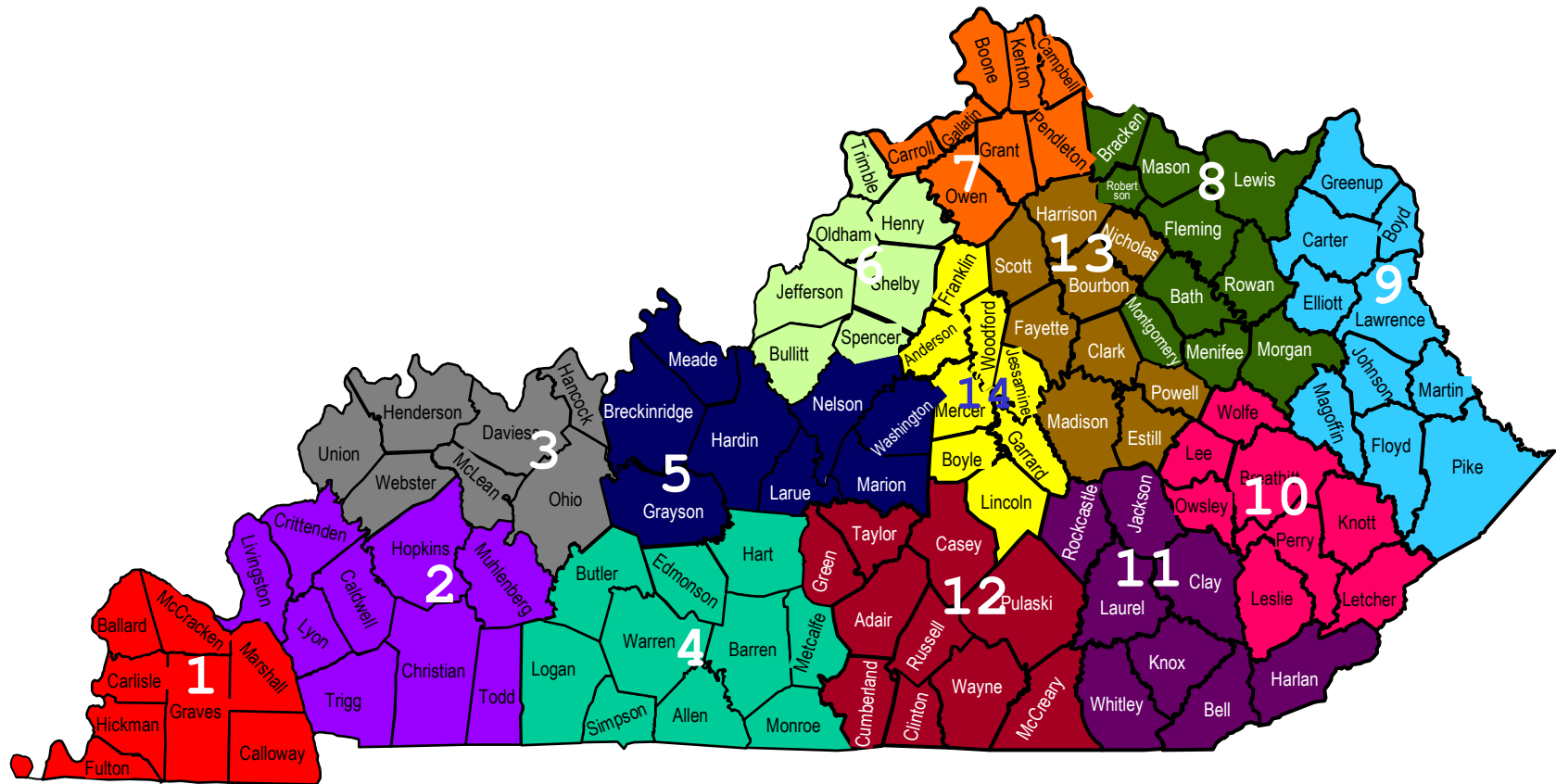
# Public Health Responded

- Updated the Disaster Response/Recovery Plan
- Added Public Health Preparedness Branch
- Expanded epidemiological staff statewide
- Expanded state lab capacity and 66 local partners
- Implemented emergency communication plan
- Developed Strategic National Stockpile plan

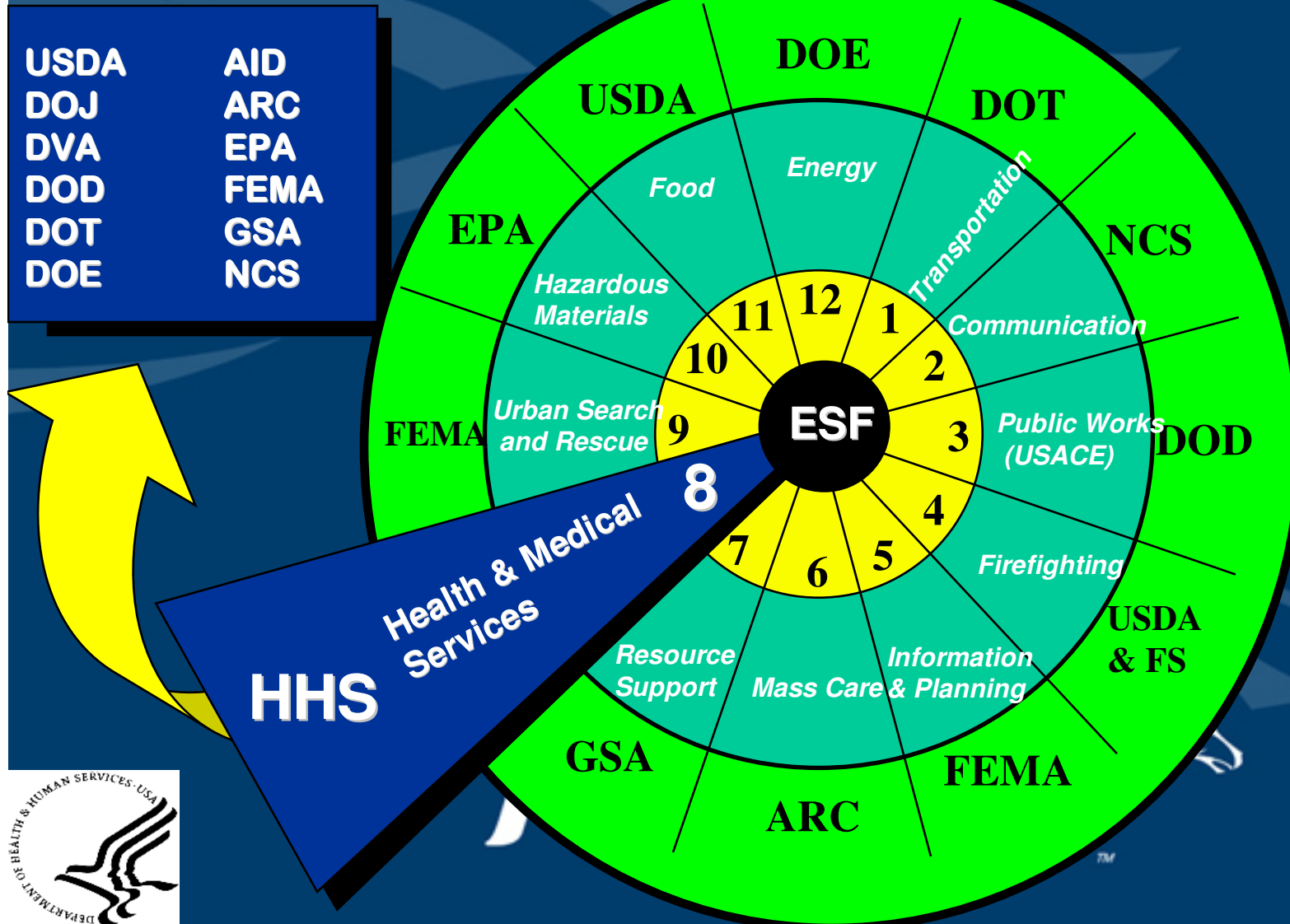
# Public Health Responded

- Obtained funding from CDC and HRSA for state, regional, and local planning
- Organized state into 14 healthcare planning regions that mirrored the state's existing EM Regions

# KyEM Regions Fall 2002



# Federal Response Plan: Emergency Support Functions (ESFs)



## Roles of Emergency Support Function #8



- 1. **Assessment of Health and Medical Needs**
- 2. **Health Surveillance**
- 3. **Medical Care Personnel**
- 4. **Health/Medical Equipment and Supplies**
- 5. **Patient Evacuation**
- 6. **In-Hospital Care**
- 7. **Food/Drug/Medical Device Safety**
- 8. **Worker Health/Safety**
- 9. **Radiological, Chemical, and Biological Hazards**
- 10. **Mental Health**
- 11. **Public Health Information**
- 12. **Vector Control**
- 13. **Potable Water/Wastewater & Solid Waste Disposal**
- 14. **Victim Identification/Mortuary Services**
- 15. **Veterinary Services**

# POP QUIZ

2003

SARS





# Severe Acute Respiratory Syndrome (SARS)

- November 2002- first cases of atypical pneumonia in China
- February 11, 2003- Chinese authorities inform WHO of 5 deaths from acute respiratory syndrome
- March 15, 2003- WHO issues first travel alert and named it Severe Acute Respiratory Syndrome (SARS)
- April 16, 2003- Novel coronavirus identified



\*Check with Nurse before entering\*



OPEN DOOR WHEN LEFT CLOSED  
DOORS OPEN 2nd TIME

- ☒ HAND WASHING REQUIRED  
Before entering & when leaving room
- ☒ GLOVES REQUIRED
- ☒ MASK REQUIRED *As per PCN 2000 (Broomall) going into and out of work*  
EYEWEAR AS NEEDED
- ☒ GOWN REQUIRED  
APRON AS NEEDED
- ☒ KEEP DOOR CLOSED
- ☒ DEDICATED EQUIPMENT  
STETHOSCOPE ok...

"BOTH"  
DOORS MUST  
BE KEPT  
CLOSED AT  
ALL TIMES

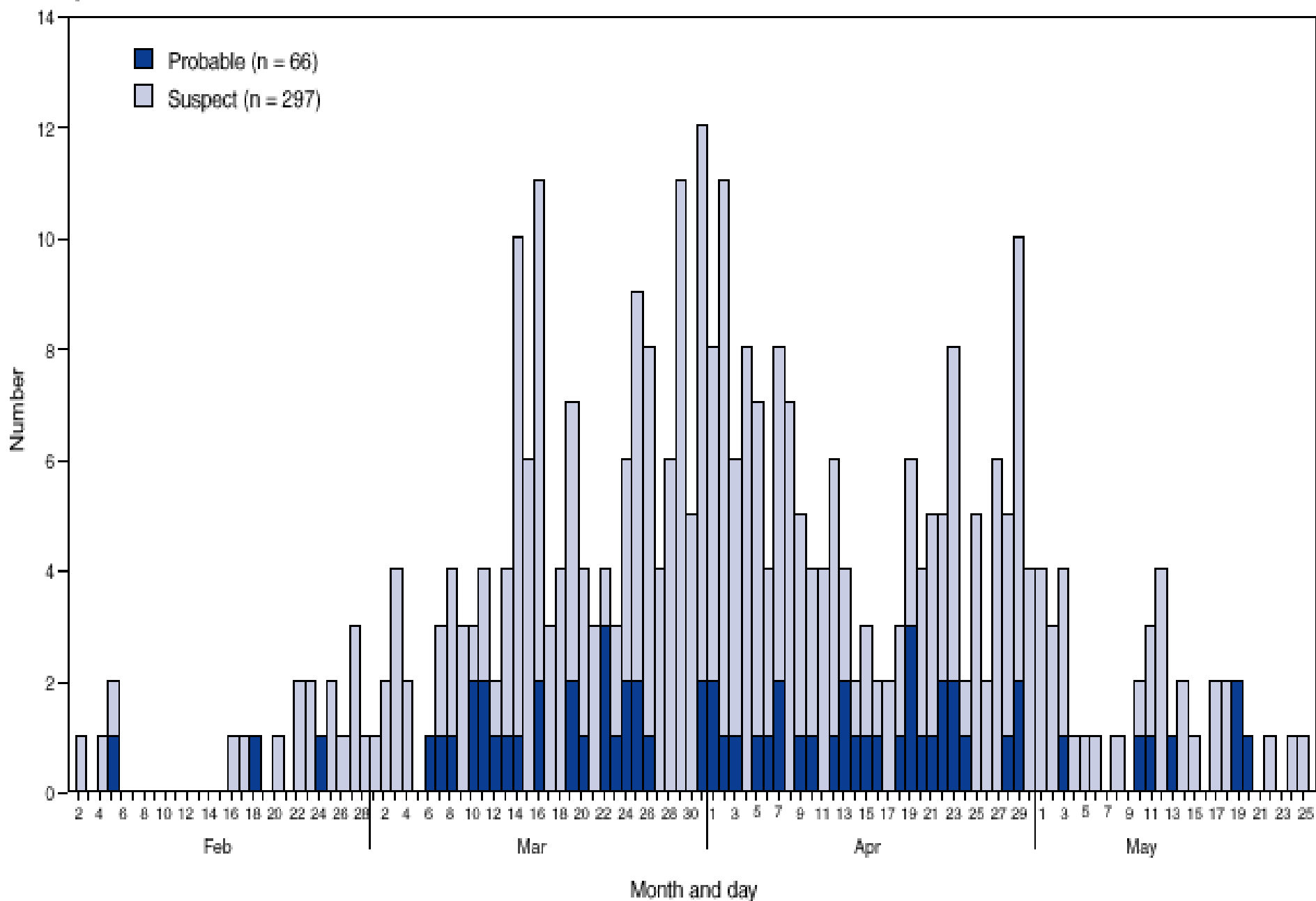
NO  
VISITORS  
ALLOWED!

"STRICT"  
"STRICT"  
ISOLATION  
AT ALL  
TIMES  
THANK YOU

# SARS CASES

- World Wide-
  - **Total cases: 8,098 as of 7/31/03 + 1 case 1/5/04**
  - **Fatalities: 774**
- USA:
  - **Total Cases: 363 (66 probable and 297 suspect)**
  - **Fatalities: 0**
- Kentucky:
  - **Total Cases: 6 (2 probable and 4 suspect)**
  - **Fatalities: 0**

**FIGURE. Number\* of reported cases of severe acute respiratory syndrome, by classification and date of illness onset — United States, 2003**



\* N = 363.

In theory there is no difference  
between theory and practice.

In practice there is.

Yogi Berra







# AFTER AUGUST 28, 2005



Mark Wilson / Getty Images



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**Kentucky**  
UNBRIDLED SPIRIT



- [About CHFS](#) | [Contact Us](#) | [Site Review](#) | [Forms and Documents](#) | [Información en Español](#)
- [Home](#) > [Department for Public Health](#) > [Epidemiology Health Planning](#) > [Preparedness](#) > **Hurricane Katrina**



**Overview**

**Emergency Preparedness**

**Emergency Supply Kit**

**History of CHFS Emergency Planning**

**Is Kentucky Really At Risk?**

**Kentucky Disaster Response Plans**

**National Incident Management System (NIMS)**

**Other Resources**

**Reaching Out To Everyone**

**Recent Events**

**Upcoming Events**

**What You Can Do To Be Prepared**

**You Can Help**

## Hurricane Katrina

### Welcome to Kentucky's Web site to assist in Hurricane Katrina relief efforts.



KHELPS (Kentucky Helps) is a database designed to collect information about displaced individuals' needs and facilitate access to the medical, social and basic needs services that Kentucky can provide to those displaced to the state as a result of Hurricane Katrina. [Use this form to enter displaced person information.](#)

The Cabinet for Health and Family Services (CHFS) can also use the database to collect information about any friends or family those evacuees in Kentucky may be looking for; this information will be provided to the appropriate agencies, such as the American Red Cross.

CHFS' agencies are working collaboratively to connect displaced people who are eligible to various services, including: food stamps; the Kentucky Transitional Assistance Program (KTAP); Medicaid; Mental Health/Mental Retardation (MHMR) services; Department for Public Health services, including clinical services and the HIV/AIDS program; the WIC program; the Kentucky Physician Care (KPC) program; and immunizations.



We are currently requesting medical aid volunteers to assist with Hurricane Katrina disaster efforts. If you are a medical worker and would like to join in the recovery effort, [please fill out the volunteer form.](#)

The Kentucky Department for Public Health is actively managing the database for medical volunteers and is awaiting official requests from the Emergency Management Assistance Compact (EMAC), which regulates requests for disaster relief volunteers. When official word is received that specific medical volunteers are needed, you will be contacted as soon as possible. Thank you for interest in this effort.

- For more detailed information concerning this deployment, please [click here](#).
- [Click here](#) to read about the most frequently asked questions concerning volunteering for this recovery effort.
- Read about the latest volunteer update [here](#).
- To read about additional disaster efforts, contact the [American Red Cross](#).





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# CHFS DEPLOYMENT

- Through Emergency Management Assistance Compact (EMAC)
  - Environmentalists Strike Team (9) 9/14
    - To inspect food and water supplies in MS Gulf Coast area
  - Public Health Administrative Strike Team (7) 9/17
    - To operate LHDs in 6 MS Gulf Coast counties for 30 days
- Self-Deployed with local health board approval
  - Public Health Nurses (6) to Gulf Coast shelter 9/16

# PUBLIC HEALTH ENVIRONMENTAL TEAM 9/14/05



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SEP 18 2005



# Hurricane Rita: NDMS 9/23/05

- NDMS activated 9:00 AM 9/22
- Evacuation of health care facilities in path of Rita
- From Beaumont, Texas to:
  - Louisville 2:00 AM 9/23 (82)
  - Lexington 8:00 AM 9/23 (27)









# HURRICANE GUSTAV Response

August 29-September 7, 2008



# INITIAL PLANNING MEETING

- August 29, 2008
- KDPH Staff Meeting
  - Plan of Action
  - DOC Activation
  - Coordination
  - Funding
  - Personnel



# DEPARTMENT OPERATIONS CENTER

- KDPH provided support and coordination Statewide and to Region IV UPC
  - Activated on Aug 30<sup>th</sup>
  - Deactivated Sept 7<sup>th</sup>
  - 24 hour operations during initial phase
  - Implemented ICS
  - Expanded and contracted operations based upon situation



# Hurricane Gustav – KDPH DOC



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# KFEC – SHELTER OPERATIONS

- Evacuees were placed at the Kentucky Fair and Exposition Center in Louisville, KY
- ~1500 evacuees from August 30 – September 7, 2008





# Hurricane Gustav - KFEC



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# KDPH AT THE KFEC SHELTER

- Provided ESF-8 support and coordination and served as the liaison between KDPH DOC:
  - Emergency Management
  - American Red Cross
  - Louisville Metro Health Department
  - Local Health Departments
  - NDMS
  - Hospitals
  - Medical Reserve Corps
  - KCCRB
  - Kentucky Pharmacists Ass'n
  - .....etc



# MEDICAL RESERVE CORPS

- Health Alert Network was used to send Statewide Alert to all KY MRC Units.
  - 27 out of 52 units reported their available volunteers within 18 hours.
  - 41 MRC Volunteers were deployed
  - 99 ESF-8 personnel were deployed
- MRC Volunteers at the KDPH DOC developed schedules and recruited additional MRC volunteers as they were needed.



# FEDERAL MEDICAL STATON

- Requested from HHS
- FMS transported using 3.5 tractor trailer trucks
- 250 bed capacity
- Contains non-acute care supplies
- Returned 150 beds and pharmaceutical cache



# Hurricane Gustav - KFEC

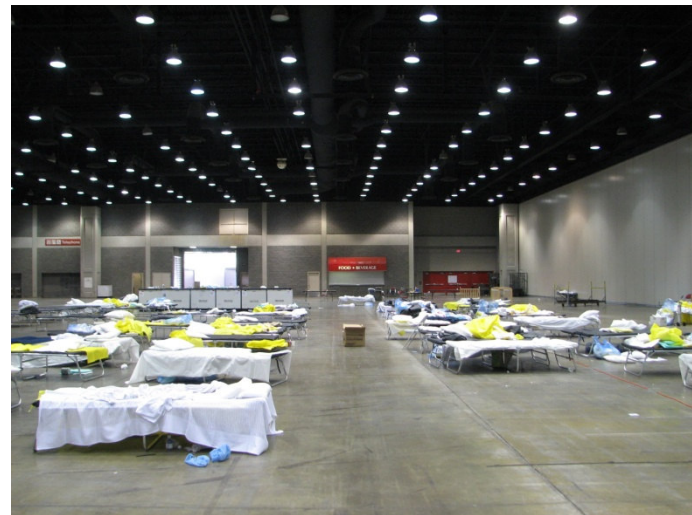


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# FEDERAL MEDICAL STATION

- Shelter used 100 Wescott beds
- 300+ were treated and released in the FMS Clinic.
  - 4 Examination Rooms
- Cared for:
  - Families
  - Small children
  - Elderly
- The FMS was staffed with ESF-8 Personnel and MRC Volunteers
  - KY was first state to use MRC volunteers to staff a FMS



# Hurricane Gustav - KFEC



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# PHARMACY SERVICES

- Coordination provided by Kentucky Pharmacists Association
- Staffed by volunteers
- Over 600 prescriptions filled



# BEHAVIORAL HEALTH

- Services provided by personnel from the Kentucky Community Crisis Response Board and Seven Counties Services.
- Provided Disaster Mental Health Services 12 hours per day.
  - 2,130 individual contacts
  - 95 family contacts
  - 443 shelter worker contacts

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# EPIDEMIOLOGY

- Disease Surveillance
  - All evacuees seen in the FMS Clinic/Shelter were evaluated using a Morbidity Report Form
  - Reports were aggregated at the end of each day and submitted to KDPH.
  - KDPH forwarded reports to CDC.



# ENVIRONMENTAL HEALTH

- Environmental Health inspections were conducted on all operations within the shelter:
  - Food Services
  - Potable Water
  - Waste Disposal
  - Hygiene
  - First Aid Supplies
  - Play area for children
  - Site layout
  - Lodging
  - Bathrooms
- Daily reports were submitted to KDPH.



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# PERSONAL HYGIENE

- Mobile showers provided by Christian Appalachian Project
- Portable hand washing sinks from the Federal Medical Station
- Multiple bottles of hand sanitizer distributed onsite.



# REPATRIATION

- Organized by TSA/FEMA in coordination with ARC
  - Started on Saturday, September 6<sup>th</sup>
  - Completed on Sunday, September 7<sup>th</sup>.
- Federal Marshalls accompanied each flight
- Three evacuees were hospitalized and were unable to leave.
  - FEMA eventually sent them home



# Ice Storm 2009

January 27, 2009



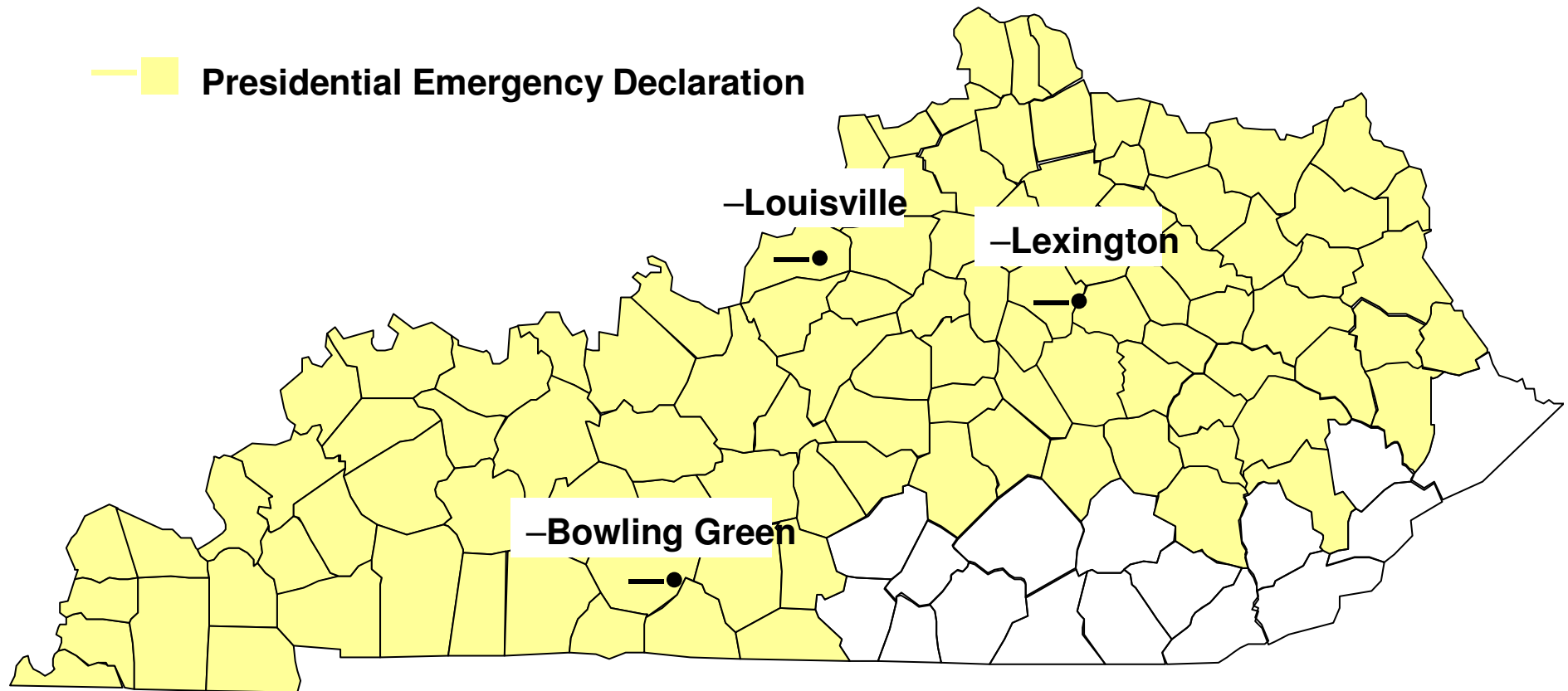
# Nature as Terrorist



–Ice Quake?: large footprint, freezing

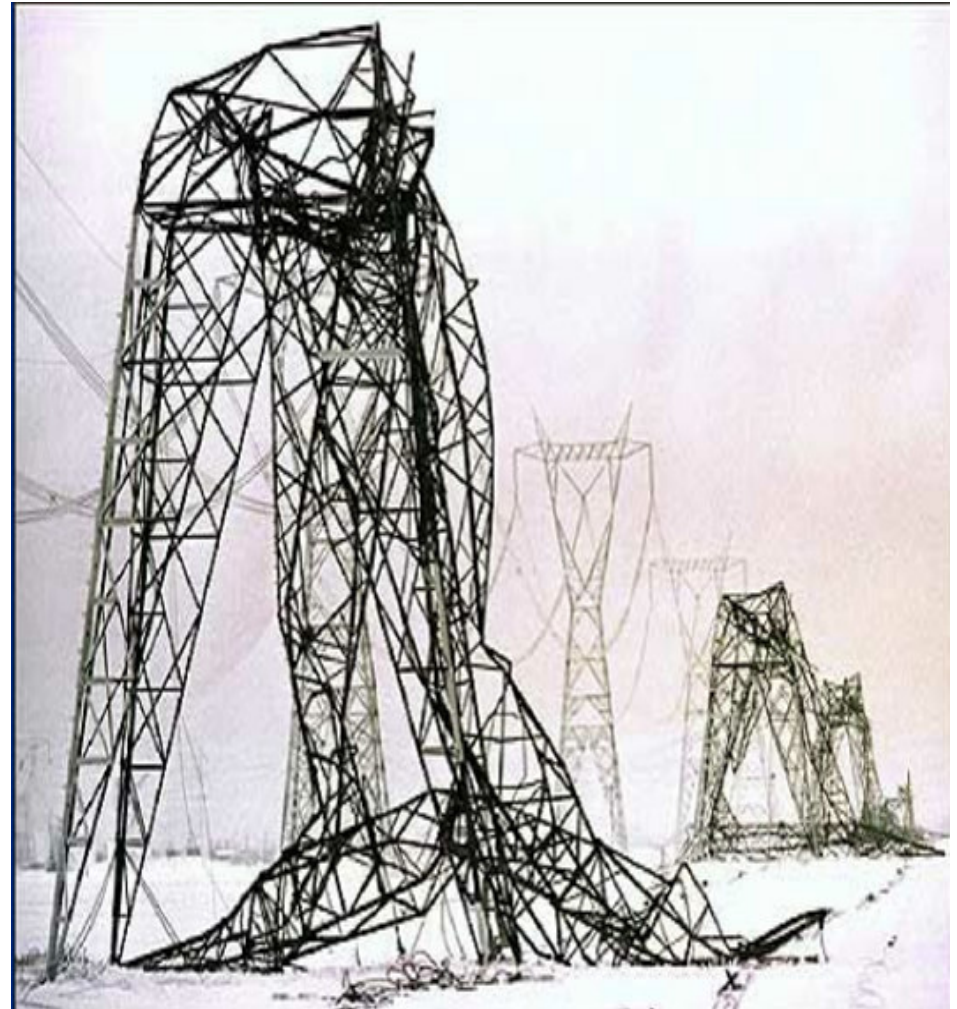


# Affected Area: 103 of 120 Counties (86%)



# January 2009 Ice Storm- Kentucky

- Power grid: Almost 800,000 units without power (36% of the state), including hospitals and nursing homes
- Water: over 100 public water systems inoperable



# Infrastructure Impacted

- Communications: cell and land lines out for days
- Roadways: many impassable
- Water: over 100 public water systems down
- Temperatures: single digits to 50's for days/weeks later



# Storm of Superlatives

- **The Biggest.** most widely damaging - estimated \$214 million
- **The First.** Governor made largest call-up for a state disaster in Kentucky National Guard history (4,100)
- **The Worst.** 36 deaths make this the most lethal ice storm, and one of deadliest modern weather events.
- **The Most.** 160+ emergency generators were placed in critical facilities across Kentucky.





DOP: 092208  
DOE: 092209

*Standing Rock*  CONTAINS: 18 MEAL KITS/CASE  
NET WEIGHT: 15 LBS PER CASE

**MEAL KIT: NOODLES AND CHICKEN**

CONTAINS THE FOLLOWING:

- NOODLES & CHICKEN ENTREE
- COOKIES
- CRACKER SNACKS
- TWO (2) PACK SALTINES
- PEANUT BUTTER
- CUTLERY KIT

**12 Month Shelf Life - Commercial Meals**

RED CLOUD FOOD SERVICE, INC.  
A NATIVE AMERICAN COMPANY - 8(a) SDB  
740 SCHNEIDER DRIVE - SOUTH ELGIN, ILLINOIS - 60177



# Public Health Response

- KDPH DOC Operational from January 27 to February 11, 2009.
- Public Health:
  - Health needs assessments
  - Hospital and nursing home capacity and capability
  - Preventing and tracking disease in shelters
  - “Special medical needs” of people in shelters
  - Clean water and safe food
  - Acute mental health interventions
  - Consequences of improperly sheltering at home
  - Preventing injury and disease through appropriate education and communication



# PUBLIC HEALTH RESPONSE

- Surveillance Reports
  - Aggregate Morbidity
    - Shelters
    - Hospitals/EMS
  - Environmental Shelter Surveillance
  - Community Needs Assessment (CDC)

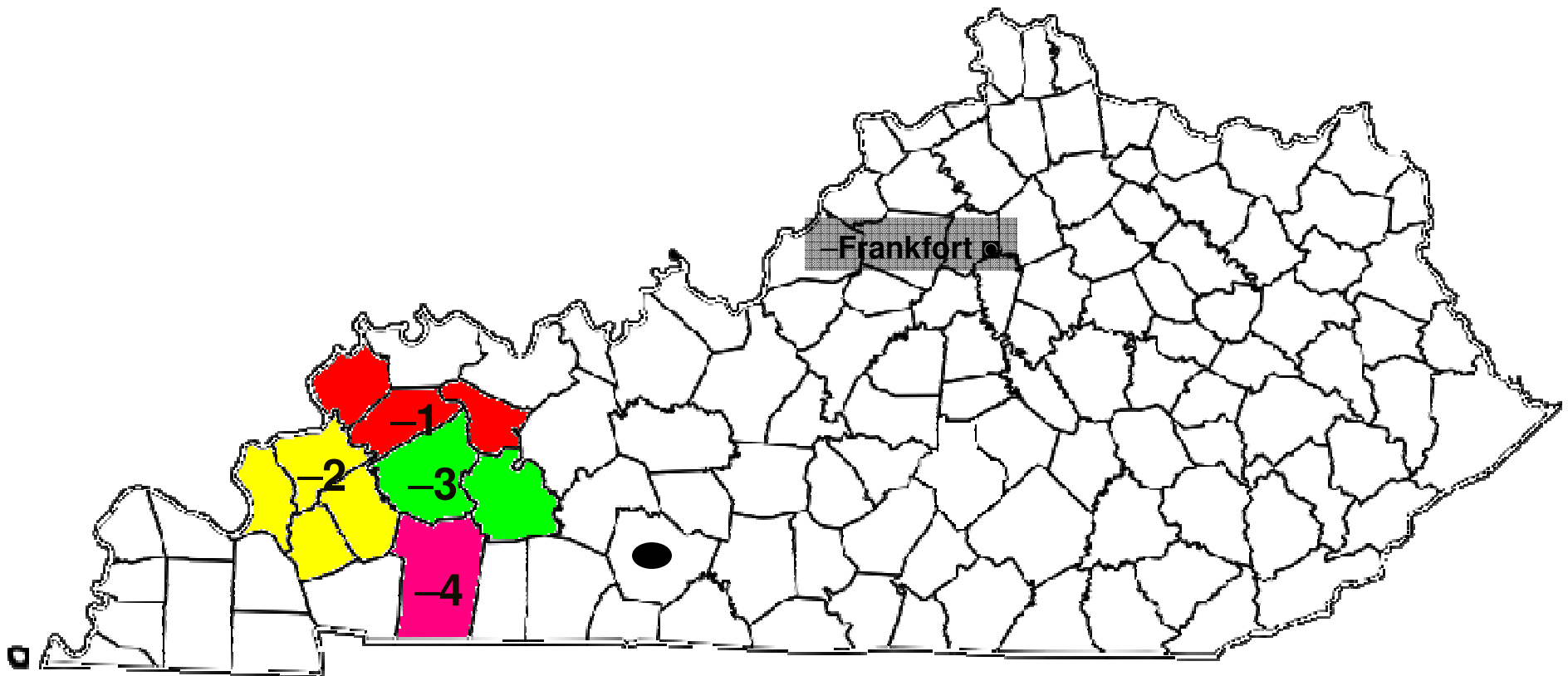


# Community Assessment for Public Health Emergency Response (CASPER)

- Team of 35
  - CDC Epidemic Intelligence Service Officers & Prevention Specialists,
  - Local Health Department volunteers
  - Univ of Louisville student volunteers
- Door to door – rapid needs assessment



# Assessment Areas: 10 Counties



–State of Kentucky



# Data Collection

- Feb 6 - 9, 2009
- 11 teams of 2-3 people
- Standardized interview instrument
- Face-to-face interviews
- 735 interviews
- ~ 4,000 sq miles



## Ice Storm 2009: Community Health Assessment Team Findings

- Almost two weeks after the storm, up to 32% of households were still without electricity
- Up to 21% reported illness, up to 11% reported an injury, and up to 15 and-a-half % reported mental health problems.
- Up to 14% reported not seeking alternative shelter or attending to health concerns because they did not want to leave their pets
- Up to 12% reported special needs :in all four areas, the need for suppl. oxygen accounted for nearly half of those reporting special needs

# Shelters



# Before the Storm: KY's Fragile Population

- Smoking prevalence: # 1 in the US, leading to likely higher percentages of folks dependent on oxygen at home
- Prescriptions filled, per person: #2 in the US
- Childhood asthma prevalence: #6 in the US, leading to likely higher numbers of children requiring home nebulizer machines
- 12% of the population is 65 years and older



# After the Storm: Emergency Shelters

- Jan 26 – Feb 18
- 202 shelters open during response
- 7,884 people housed in the shelters operating in 2/3's of Kentucky's counties
- Most, but not all, with special needs patients



# Environmental Conditions

- 6% of inspections - shelter had no hot water available
- 4% of inspections - shelter had no electricity
- Lack of adequate electricity and heated water created potentially dangerous conditions in bitter cold temperatures
- ~6% - fewer than one toilet or hand washing station/20 persons
- 53% had adequate laundry service

# Food Safety

- 75% of shelters were actively preparing food onsite
- Untrained food service workers and unapproved food source became public health issue in volunteer setting
- Maintaining proper holding temperatures, both hot and cold, was issue in multiple shelters across the state.

# Morbidity Surveillance

- CDC Natural Disaster Morbidity Report Form used
- Limited acute morbidity present
- Special medical needs & chronic disease common
  - Not sick enough to require hospital or nursing home care, but require at least some medical attention
  - Normally coping well at home, but may decompensate away from usual environment.



# Decision: Go to Shelter vs. Stay at Home

Factors that might affect decision:

- Age and current state of health
- Pharmaceutical or medical needs
- Family / neighbor support
- Time of year / weather
- Pets / livestock

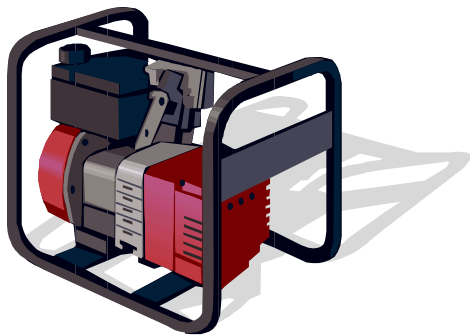


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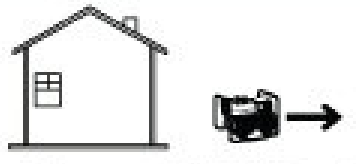


# Risks of Staying at Home

- Lack of power at water plant → Potentially  
unclean water → Disease risk
- Lack of power at home → Improper  
generator use, or need for alternative sources  
of heat → Carbon monoxide (CO)  
poisoning or fire risks



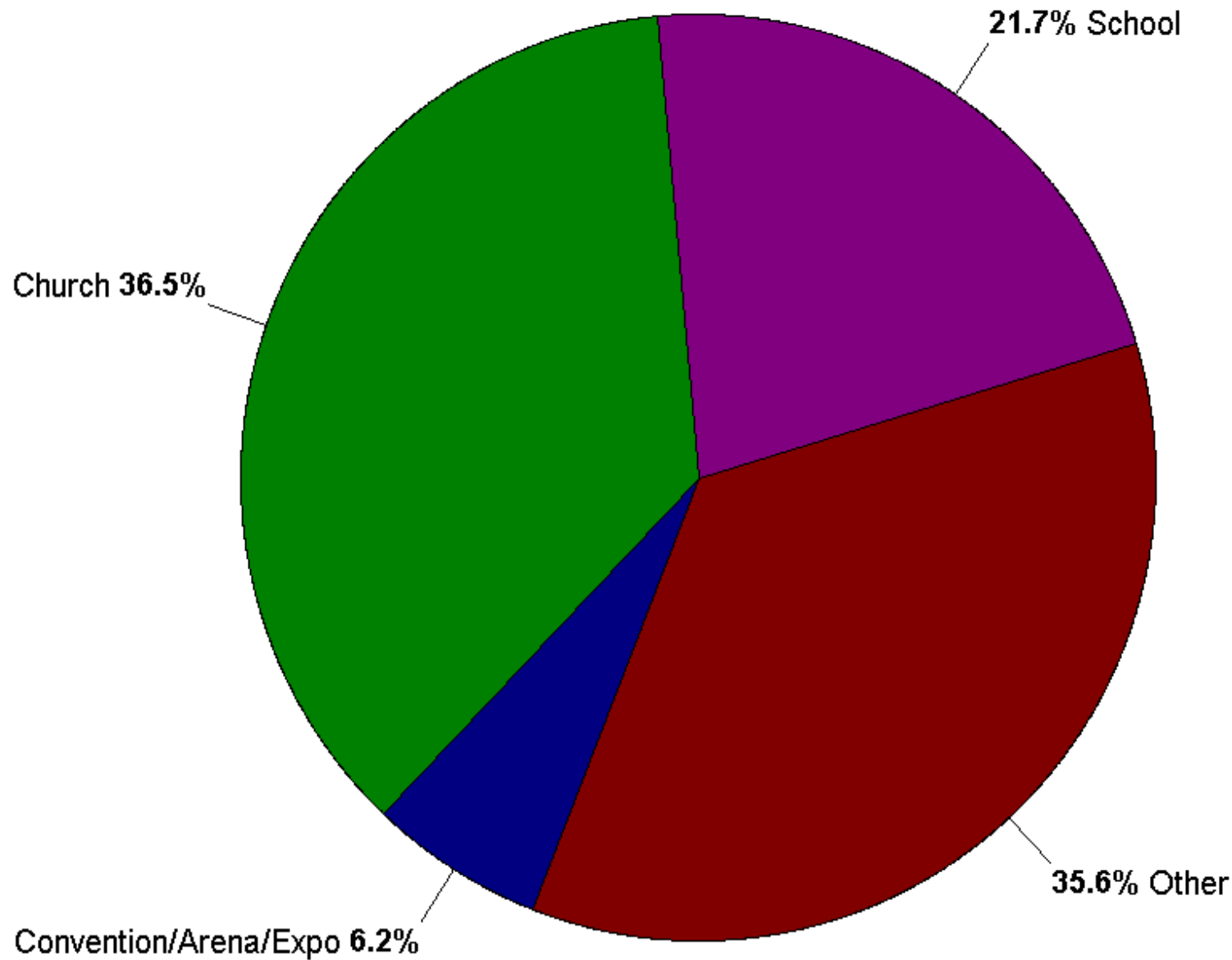
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⚠ DANGER	
Using a generator indoors <b>CAN KILL YOU IN MINUTES.</b> Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.	
 <b>NEVER</b> use inside a home or garage, <b>EVEN IF</b> doors and windows are open.	 Only use <b>OUTSIDE</b> and far away from windows, doors, and vents.

# Shelter Environment

- Usually in school buildings, churches or other community buildings which have met only basic facility requirements.
- Some have emergency power generation, although it may be limited to just emergency lighting and not sufficient for heating and cooking
- Limited medical equipment
- Most beds are cots-difficult to get in/out

# 2009 Ice Storm Shelter Types



# General Shelter Population

Red Cross only provides first aid level care in shelters

- Limited to persons who are:
  - independent and capable of self-care requiring only minimal support for minor illnesses and injuries.
  - with conditions requiring observation or minor supportive assistance in activities of daily living. Independent with some family/caretaker support.



# Special Medical Needs

- Individuals not sick enough to require hospital or nursing home care, but who require at least some medical attention
  - Dependent on electricity to operate medical equipment
  - In need of assistance with medication, injections, or simple dressing changes
  - Receiving dialysis
  - Receiving hospice services

# Special Medical Needs

May be people who are normally coping well at home, but who may decompensate in cold or away from usual environment.



# Special Medical Needs - Limitations

- Shelterees do not always bring needed supplies and the availability from community during an emergency may be limited.
- Some procedures may not be possible or appropriate in the shelter environment (e.g. provision of IV chemotherapy, or peritoneal dialysis).
- Staffing is dependent on HD staff nurses, supplemented with volunteers from the community health care providers and the Medical Reserve Corps.

# Special Medical Needs - Limitations

- Ice Storm demonstrated many deficiencies in shelter planning and operations
- Few Local Health Department nurses have up to date skills needed to care for special needs population
- Community healthcare professionals must volunteer to assist in shelter management

# Beautiful, but Deadly



**–36 storm-related deaths, 10 from CO poisoning**



# Ice Storm 2009: Community Health Assessment Team Findings

- About 50% of families used a generator at some time after the ice storm
- 10-20% of generators being operated in a manner that put family at risk for carbon monoxide poisoning
- 10-15% of families using an outdoor grill or camp stove inside for cooking or heating
- Only 30% of families had a working CO detector

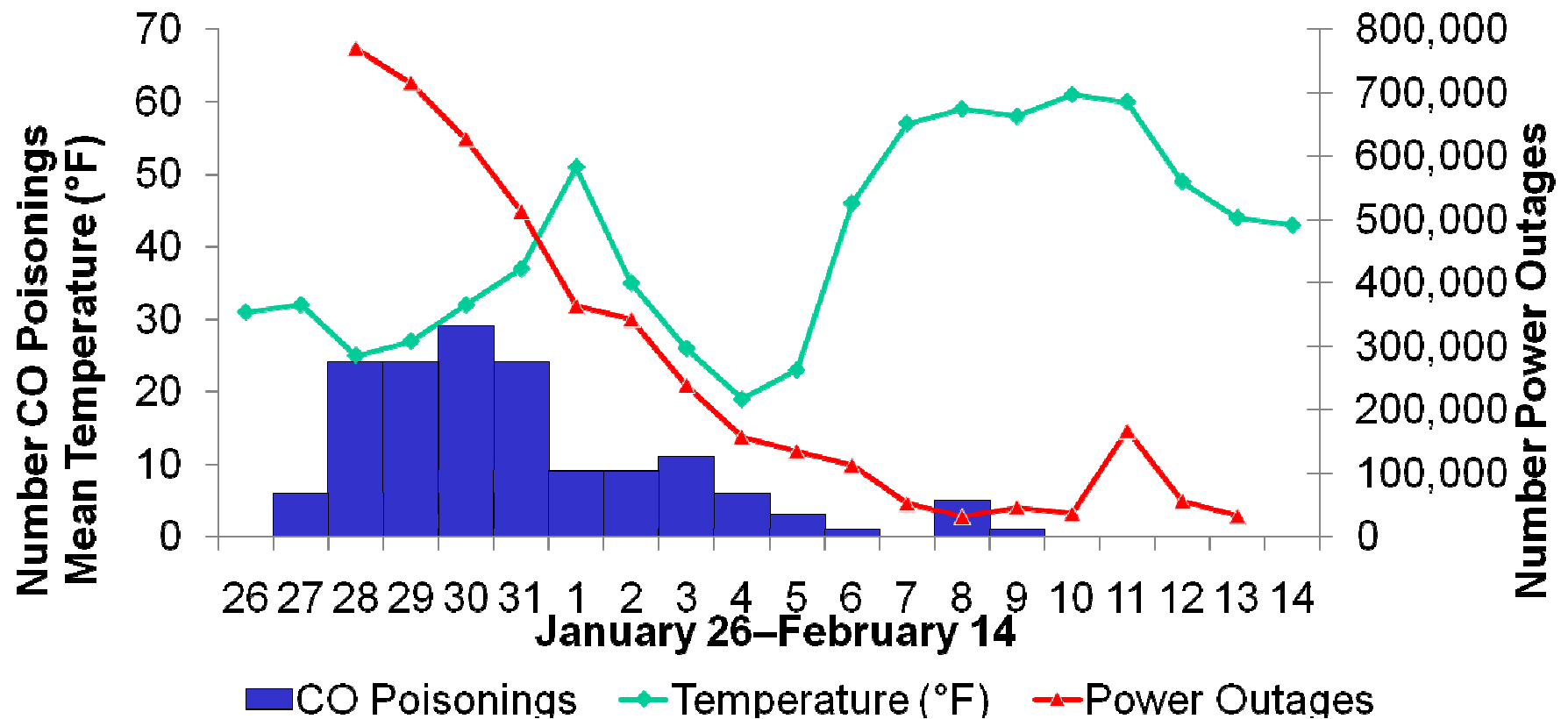
# Storm-Related Deaths

- 36 fatalities
- Cause of death
  - CO poisoning (10), hypothermia (7), cardiac disease (5), fall (3), fire/burn/smoke inhalation (3), motor vehicle accidents (3), asthma/emphysema (3), drowning (1), and electrocution (1)
- Age range 4–93 years, median 56 years
- 23/34 (68%) male
- 21/26 (81%) white, 5/26 (19%) black

# Sources of CO Poisoning

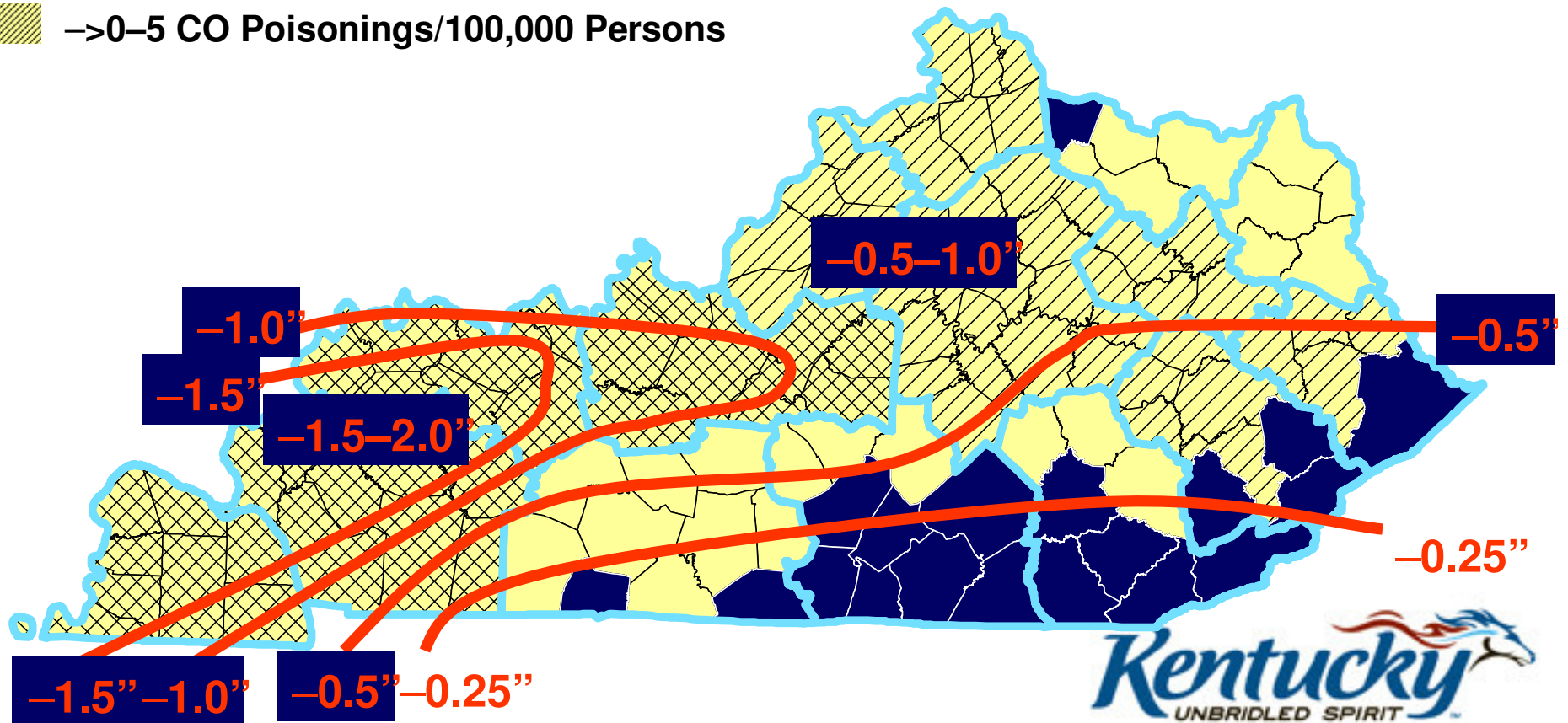
	Deaths (%)	HBOT's (%)
Generator	8 (80%)	16 (57%)
Kerosene heater		1 (4%)
Propane heater	1 (10%)	
Propane cooking device		5 (18%)
Indoor charcoal use	1 (10%)	5 (18%)
Vehicle running in garage		1 (4%)

# CO Poisonings By Day



# Ice Accumulation

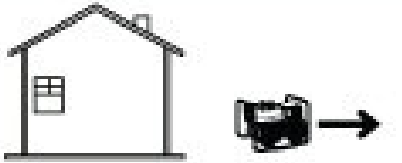
- Presidential Emergency Declaration
- 5 CO Poisonings/100,000 Persons
- 0–5 CO Poisonings/100,000 Persons



# Appropriate Generator Use

## WHAT TO KNOW: GENERATORS AND CO

Portable generators can be of vital assistance when the power goes out. But a generator can also be dangerous. A generator's exhaust contains poisonous carbon monoxide (CO) which can kill you and your family in minutes. You cannot see or smell CO. That's why it's called an "invisible killer."

⚠ DANGER	
Using a generator indoors CAN KILL YOU IN MINUTES. Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.	
	
NEVER use inside a home or garage, EVEN IF doors and windows are open.	Only use OUTSIDE and far away from windows, doors, and vents.

# Public Information

- **Reports** – KDPH forwarded reports to CDC
- **News Releases**
  - Jan. 29 – Food safety guidelines
  - Jan 30 – Prevent carbon monoxide poisoning
  - Feb. 2 – Avoiding hypothermia
  - Feb. 5 – Dangers of kerosene heater use
  - Feb. 9 – Survey W. Ky. Alternative heating sources posing dangers
  - Feb. 10 – Audio news release on carbon monoxide poisoning
  - Feb. 11 – Winter storm leaves behind lingering health concerns
- **Fliers** - generator safety, chainsaw safety, peanut butter in meals
- **PSA** – Gov. Beshear on carbon monoxide poisoning
- **KOIN** - Pre-event alert sent out Jan. 26 emphasizing winter storm safety and carbon monoxide poisoning from generators, grills.

# Surge Personnel: KHELPS

- 161 ESF-8 volunteers
- 21 LHDs plus KDPH employees



# MEDICAL RESERVE CORPS

- Deployed 30 MRC Volunteers from 9 different units to work in shelters





**Overview**

**Emergency Preparedness**

**Emergency Supply Kit**

**Emergency Support Team**

**History of CHFS  
Emergency Planning**

**Is Kentucky Really At  
Risk?**

**Kentucky Disaster  
Response Plans**

**Kentucky Health  
Emergency Listing of  
Professionals for Surge  
(K HELPS)**

**Kentucky Outreach and  
Information Network  
(KOIN)**

**Kentucky Pandemic  
Influenza Preparedness  
Plan**

**Links to Other Resources**

**Materials and  
Publications Available**

**National Incident  
Management System  
(NIMS)**

## Kentucky Health Emergency Listing of Professionals for Surge (K HELPS)



In times of need, Kentucky helps.

Thank you to all of the volunteers who assisted with the sheltering operations in Louisville. Your unselfless dedication was greatly appreciated.

In the event of a large-scale public health emergency, the need for surge capacity of health and medical systems would be critical. This new program will allow public health officials to register health professionals, apply emergency credentialing standards, and allow for the verification of the identity, credentials and qualifications of prospective volunteers.

Since 2003, the Medical Reserve Corps (MRC) program has grown rapidly across the U.S. Sponsored by the Office of the Surgeon General, MRC programs have been developed to supplement existing local public health and emergency preparedness initiatives. In Kentucky, 117 of 120 counties are now covered by a registered MRC, with most units sponsored by local health departments in conjunction with local emergency management agencies.

The new K HELPS program was designed to complement existing local MRC programs. Because state K HELPS and local MRC units will work together, the programs will require reduced manpower to coordinate. A volunteer can register with K HELPS online and choose the local MRC unit associated with the volunteer's geographical area. The K HELPS system will verify credentials of the volunteer and notify the local health department to complete the approval process. It will be the responsibility of the local MRC unit to provide an orientation, offer training, and issue an identification badge for the volunteer. The K HELPS system has the ability to alert volunteers by either email, telephone call, or both. Local MRC units will also have administrative rights to alert and activate volunteers when needed.

# EMAC Teams

## North Carolina

- Hospitals teams in Livingston & Crittenden Counties (8 on team)

## Alabama

- 3 SpNS Teams (7-9 on team)

## Mississippi

- 1 Environmental Strike Teams (8 on team)
- 1 Shelter Surveillance Team (4 nurses 1 ERC)

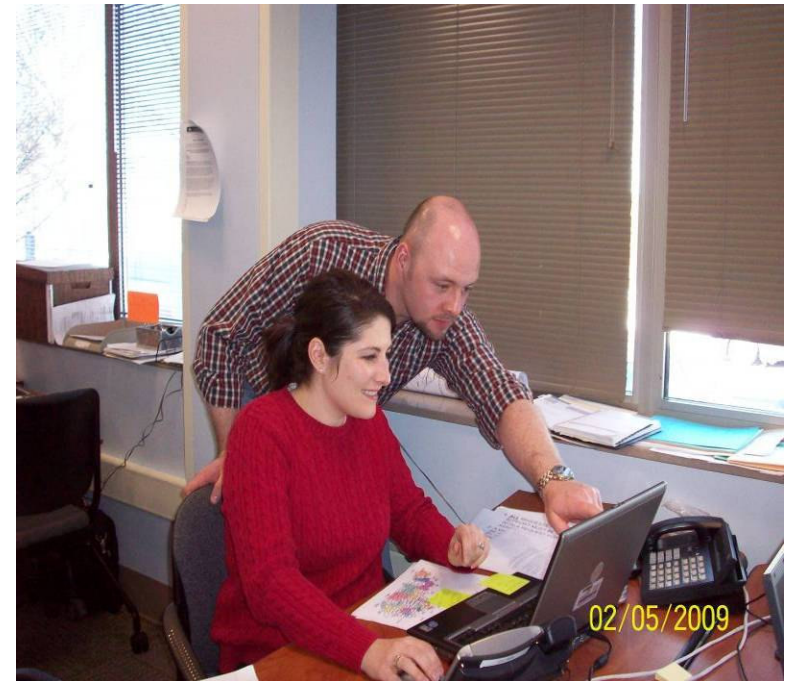
## Tennessee

- 1 Shelter Surveillance Team (4 nurses)

## Florida

- Recovery Team (2)

60+ individuals





# H1N1 Influenza A

Cabinet for Health and Family Services



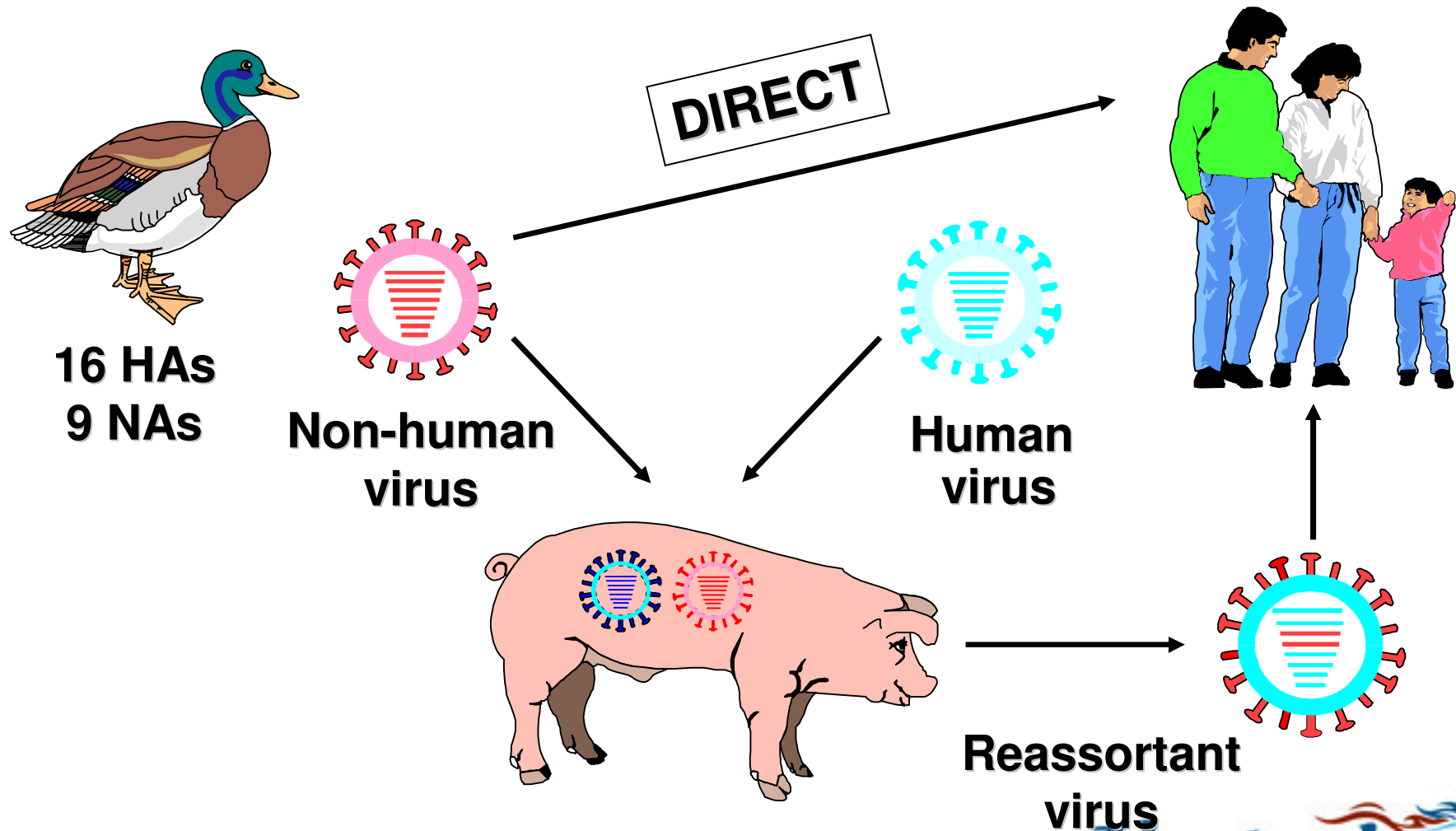
# H1N1 Pandemic 2009

- Pandemic
  - Definition
  - Cause
  - Frequency
  - Past experience
- History of Pandemic Planning in Kentucky
- H1N1
  - History
  - Why is it unusual?
  - Current update

# Pandemic

- Pandemic = the entire world is affected
  - Caused by a new strain of Influenza A
    - No one has immunity
  - The new (novel) virus is often more virulent but not always
- Pandemics occur 3 to 4 times a century

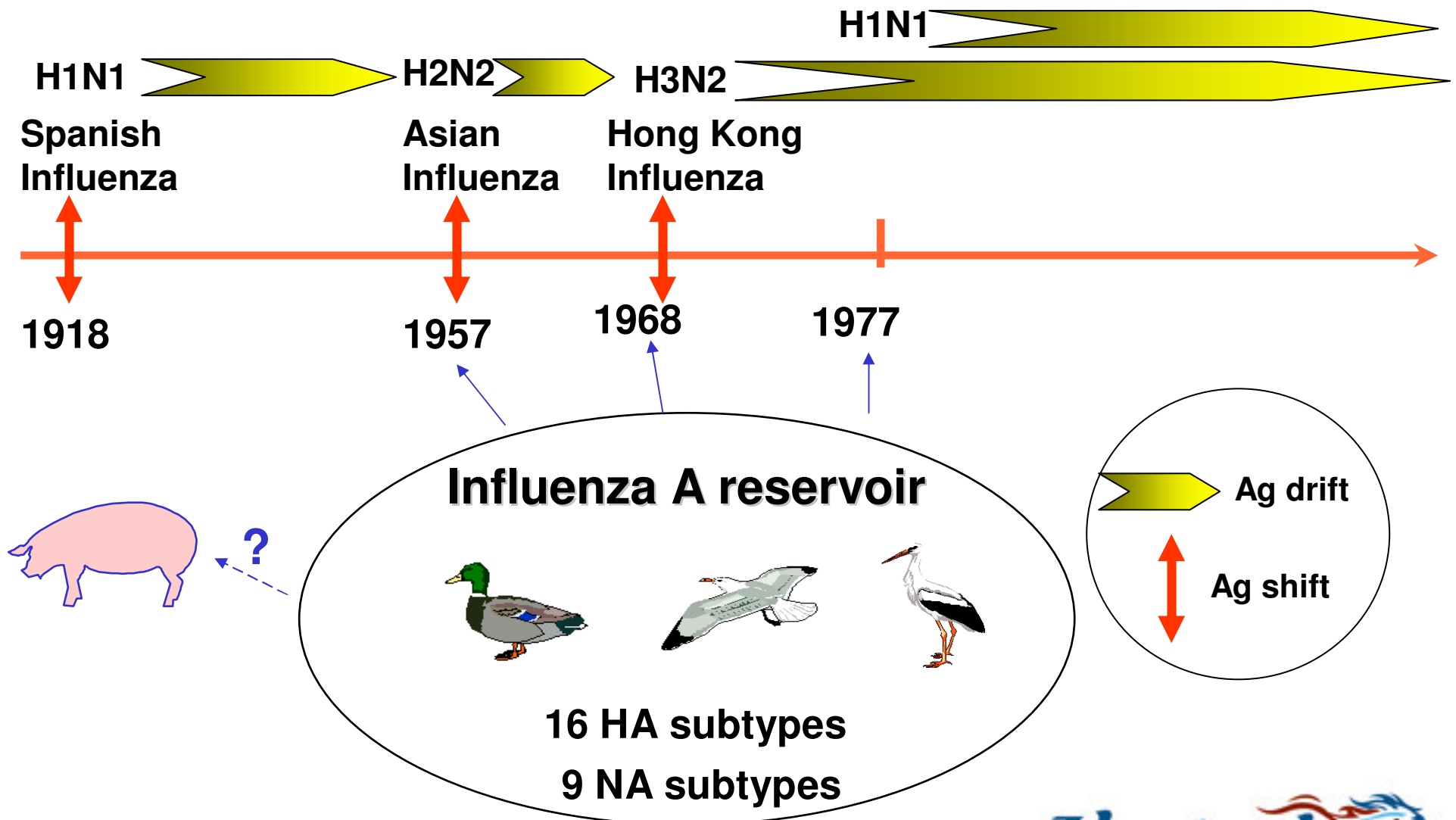
# Process



Source: CDC Influenza Branch  
Cabinet for Health and Family Services

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# Circulation of Influenza A Viruses in Humans



# Past Experience



# Pandemic Influenza 1918



Photo: The American Red Cross

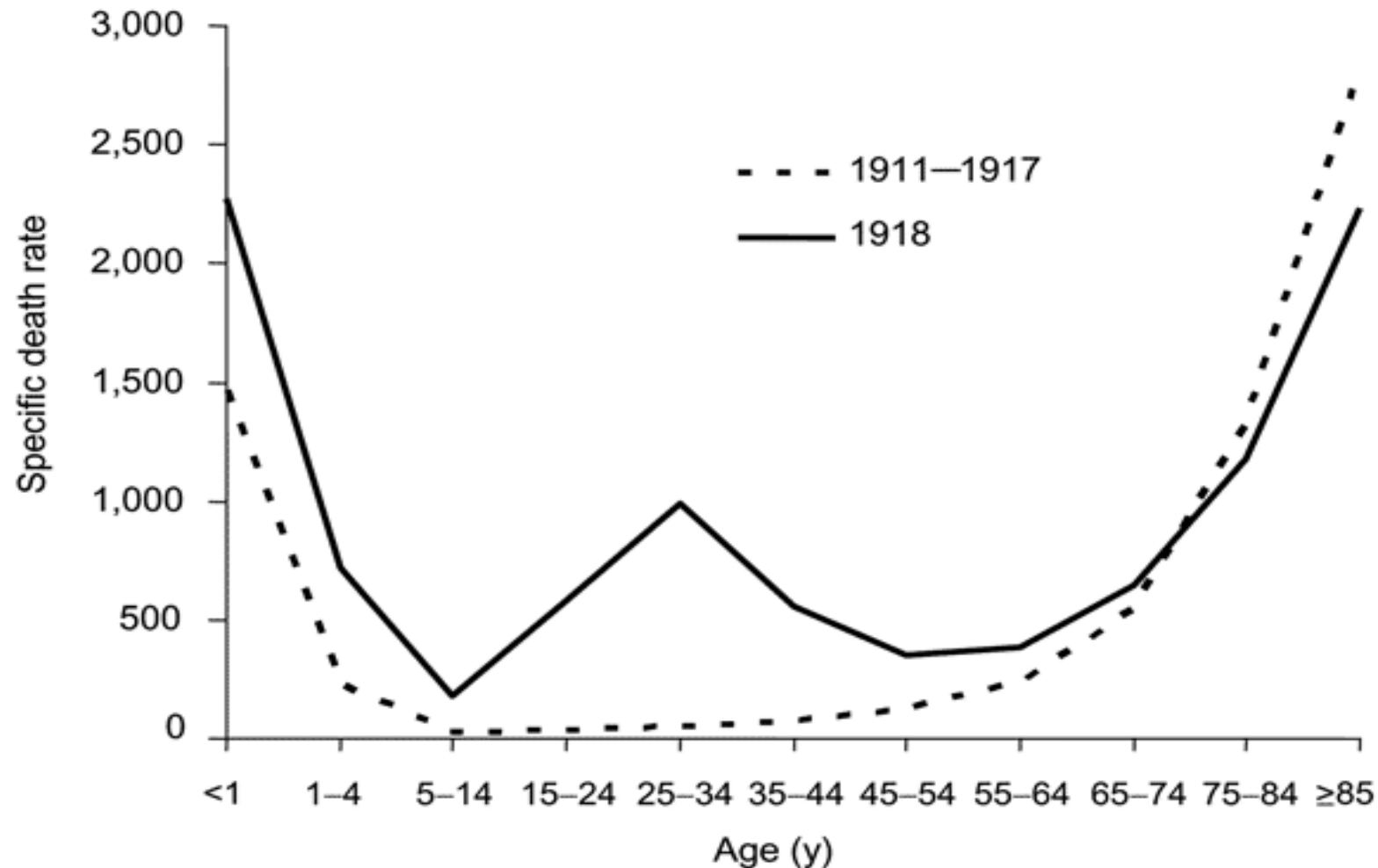




**Influenza: Past and Present Danger**



# Mortality rate by age: 1918 pandemic



# 1918 Pandemic 2<sup>nd</sup> and 3<sup>rd</sup> waves

108

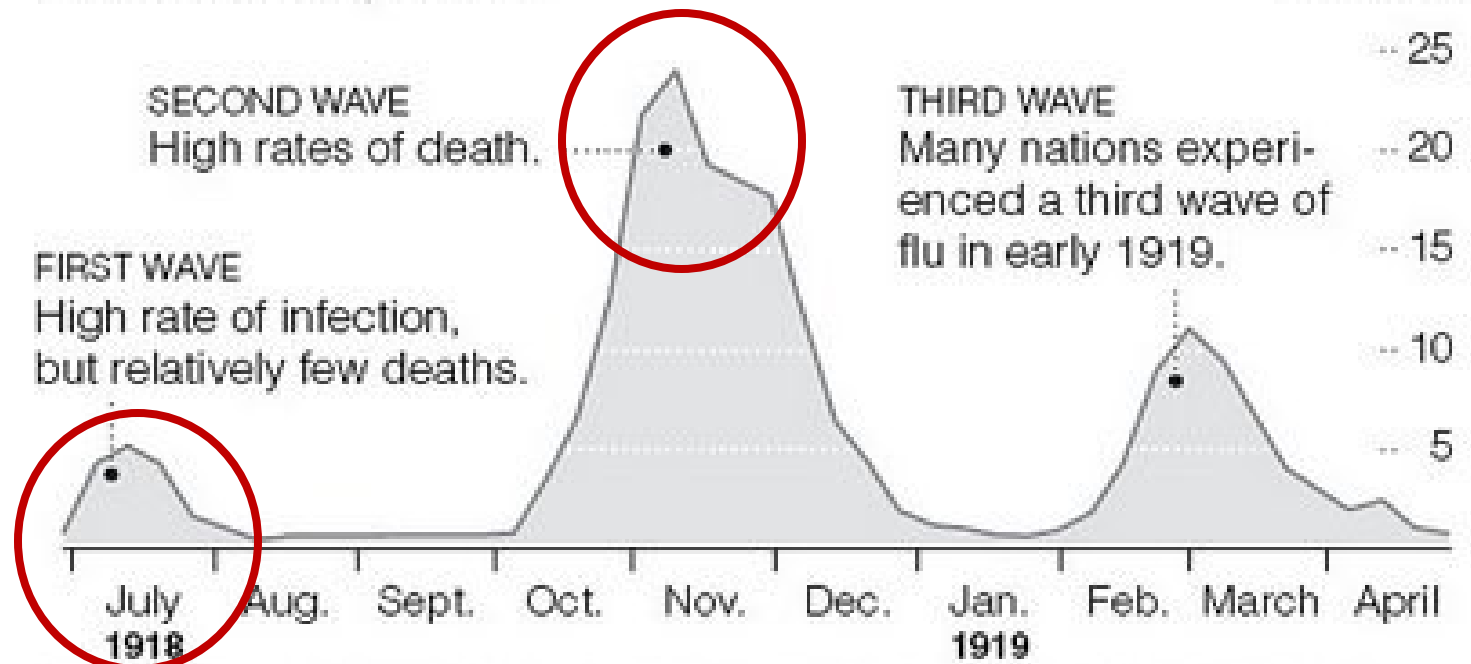
Prior pandemics exhibited multiple waves over many months.

The first, low mortality wave was followed by a second, high mortality wave.

## The 1918 Pandemic

The influenza pandemic of 1918 spread across Europe, Asia and North America in three distinct but uneven waves, and was fatal for about 2 percent of those who caught it. Global data is incomplete, but death rates in Britain hint at the severity of the three waves.

Weekly influenza and pneumonia deaths in Britain, 1918-19



Sources: *Emerging Infectious Diseases*; Jeffery K. Taubenberger and David M. Morens

THE NEW YORK TIMES

# Kentucky Preparation prior to 2009

Cabinet for Health and Family Services



# Kentucky's Pandemic Plan

- The Department for Public Health has been planning for a pandemic since 2003
  - Stimulated by SARS (2003)
  - Accelerated by H5N1 (aka Bird Flu) 2005
  - Multidisciplinary planning group
    - Stockpiled emergency use medicine and supplies
    - Held statewide summit January 2006, followed by 50 local summits around the state in 2006

# Community Level Planning

- **Went beyond public health**
  - Healthcare (hospital, physician offices, mental health, etc)
  - Businesses (both large and small)
  - Schools and universities
  - Faith and community organizations
  - Travel industry in some locations
  - Individuals and families
- **Encouraged continued planning and preparedness, even while threat is less apparent**

# Kentucky's Pandemic Plan

- Achievements:
  - All Local Health Departments have plans
  - Active participation with KHA and KMA
  - KyEM scheduled a statewide Pandemic Exercise August 3-7, 2009
    - Multiple agencies, jurisdictions
- Challenges:
  - Limited engagement by other state / local government agencies /officials
  - Limited engagement by private sector
  - Lack of interest, dismissal of threat, underestimation of impact on operations, plus assuming health professionals would take care of everything

# H1N1 Influenza Pandemic

April 2009







TOP STORIES IN U.S.



Next Case: State vs. Federal Power

1 of 10



U.S. Weighs Release of New CIA Memos

2 of 10



GOP Seeks New Mexico Comeback

3 of 10



APRIL 27, 2009, 6:49 A.M. ET

# Flu Fears Spur Global Triage

Article

Slideshow

Comments (1)

MORE IN POLITICS »

1/9

More Slideshows ▼

Print Slide

## The Race to Contain Swine Flu

Global health officials mobilized to combat a deadly strain of swine flu, as new cases were reported in locales stretching from New Zealand to Ohio.

A monitor at Japan's Narita international airport displayed a notice regarding swine flu. Many nations issued travel warnings for Mexico. World Health Organization spokesman Peter Cordingly said the new virus was spreading quickly in Mexico and the southern U.S., and it could be expected to turn up anywhere.

# H1N1 (Swine) Influenza

- Recognized in Mexico City in mid-March 2009
- By April 24:
  - Hundreds of cases in Mexico with many deaths
  - 5 cases in California and 2 in Texas
  - Over the weekend of April 25-26 the public health system “stood up and leaned forward”
  - Sunday, April 26 HHS declared: “Public Health Emergency”
  - The challenge was how to inform public without causing panic and flooding the healthcare system.
    - “I am concerned but not alarmed.”

# DPH Response

- Implemented our Pandemic Influenza Plan
- DPH Department Operation Center  
Monday, April 27 thru Friday, May 15



# Information Sharing

During first 2 weeks:

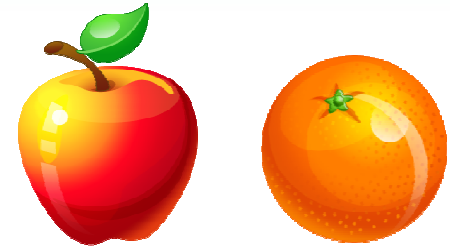
- Daily conference calls with CDC/ASTHO
- Daily conference calls with CDC/CSTE
- Daily conference calls with CDC/PIOs
- Daily conference calls with LHDs
- Conference calls with KMA
- Conference calls with KHA
- E-mails/ blast faxes to healthcare providers
- Several media events





# Compare & Contrast: H1N1 vs. Seasonal

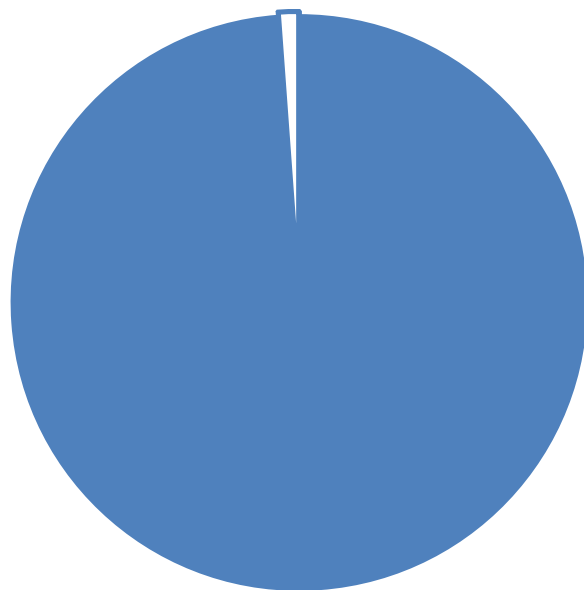
- Similar mechanism of spread
- Comparable severity of illness
- Attack rate for H1N1 likely higher, because more of the population is susceptible
- Incidence of H1N1 infection highest in children
- Incidence of H1N1 infection lowest in seniors
- More complications for illness in pregnant women and those with chronic diseases
- Similar public health strategies



# H1N1 Pandemic Strain Predominant

## 2009-2010 Influenza Season

### Positive Specimens by Subtype



- Positive for H1N1
- Positive for Seasonal Flu Subtype

# Public Health Strategies

## 3 Public Health strategies for successfully responding to an influenza pandemic:

- Antiviral medicines
- Vaccine
- Behavioral interventions that decrease spread
  - Individual health behaviors
  - Community-based mitigation interventions, such as “social distancing,” and other activities

# Response

Federal Strategic National Stockpile  
shipments of antivirals and personal  
protective equipment ( PPE)

Friday May 1 and Saturday May 2

**DEPARTMENT FOR PUBLIC HEALTH  
MOBILE OPERATIONS UNIT-1**

*Kentucky*  
UNBRIDLED SPIRIT™

NIC HAWK







THIS SIDE UP

**INOVEL**  
Different by design™

See inside for  
CBRN warning.

# 3000 SERIES N95 HEALTHCARE PARTICULATE RESPIRATOR AND SURGICAL MASK

**3003N95-1**  
Master Healthcare  
Respirator and  
Surgical Mask  
Tan Strap  
White Cover  
Large

8 Boxes  
(160 Respirators)

9 00411 462  
Use by  
04 2010



001825250003003128

CONTENTS: 8 BOXES OF 20 EACH/160 PER CASE  
CONTENU: 8 BOÎTES DE 20 UNITÉS/160 PER CAISSE  
CONTENIDO: 8 CAJAS DE 20 CADA UNA/160 POR CARTON

**FRAGILE**  
HANDLE WITH CARE

**INOVEL**  
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Moldex - Metric, Inc.  
PDR 787HNS309  
Contract # 03-077-0000P

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INOVEL LLC  
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800-546-6823 FAX 310-204-4337  
www.inovelmedical.com e-mail: sales@inovelmedical.com  
U.S. Patents #4,630,347; #4,384,577 and other Patents Pending.  
Trademarks of Moldex-Metric, Inc., Culver City, CA 90232 USA  
3000-001 REV C S-08

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See inside for  
CBRN warning.

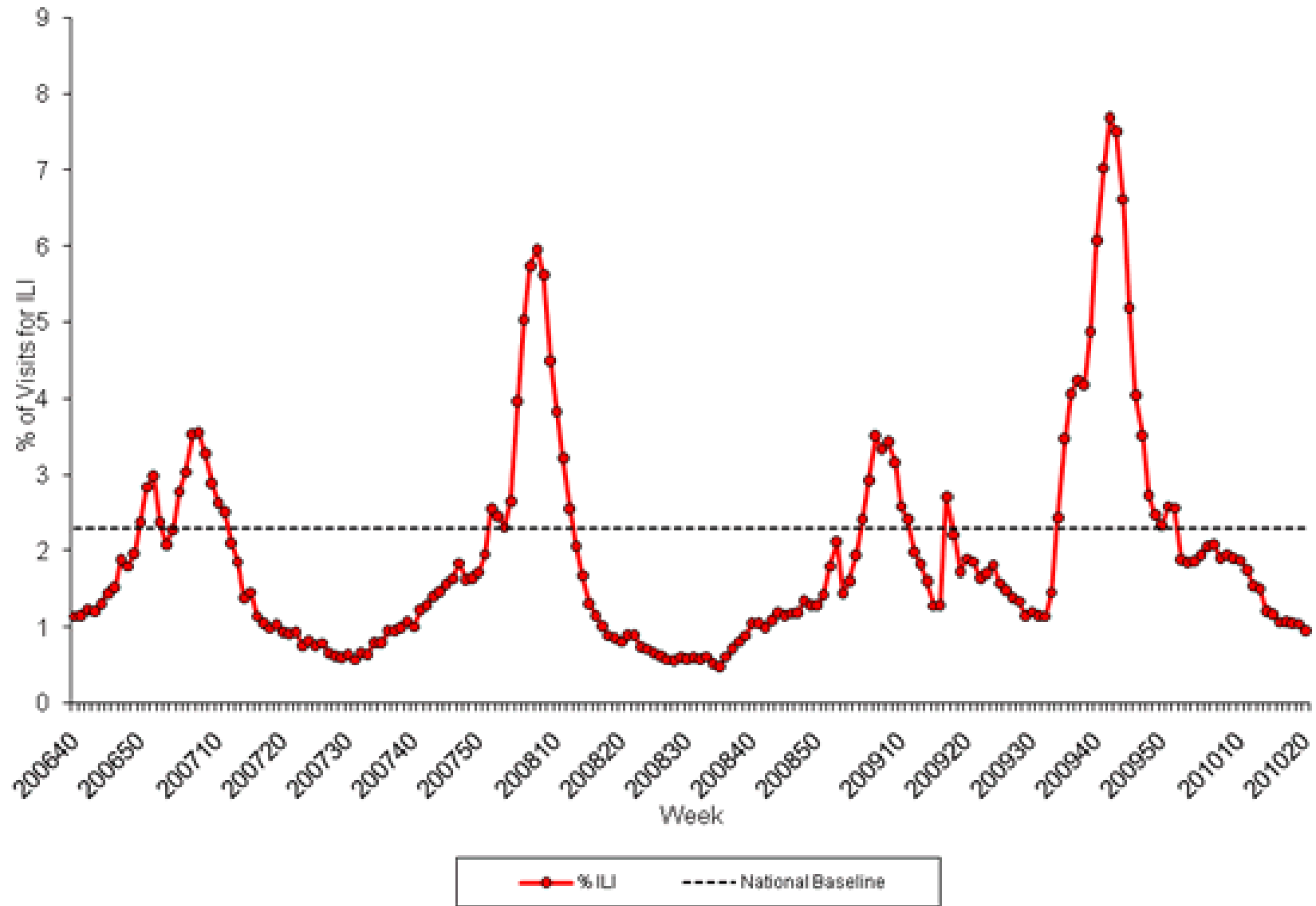
# 3000 SERIES N95 HEALTHCARE PARTICULATE RESPIRATOR AND SURGICAL MASK

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Master Healthcare  
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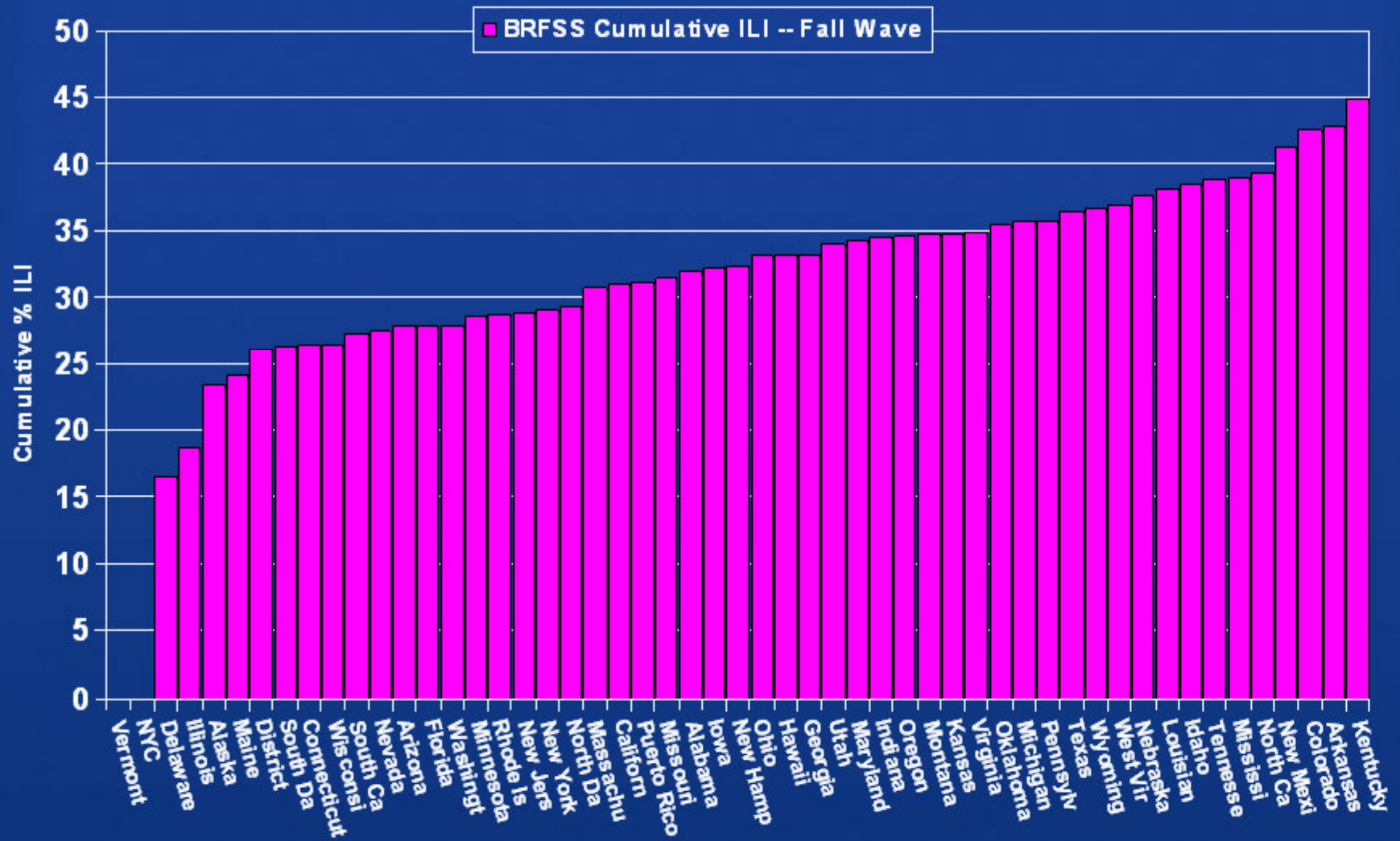
# National Estimates of H1N1 Impact

- No. of cases:
  - Ages 0-17 years: 19 million
  - Ages 18-64 years: 35 million
  - Ages 65 years and older: 6 million**Total: 60 million**
- Hospitalizations: 270,000
- Deaths: over 12,000, most in the 18-64 year group

# Percentage of Visits for influenza: US



Epidemiology/Surveillance  
BRFSS Cumulative Monthly Self Reported ILI in Adults– Fall Wave  
August 2 – December 13, 2009

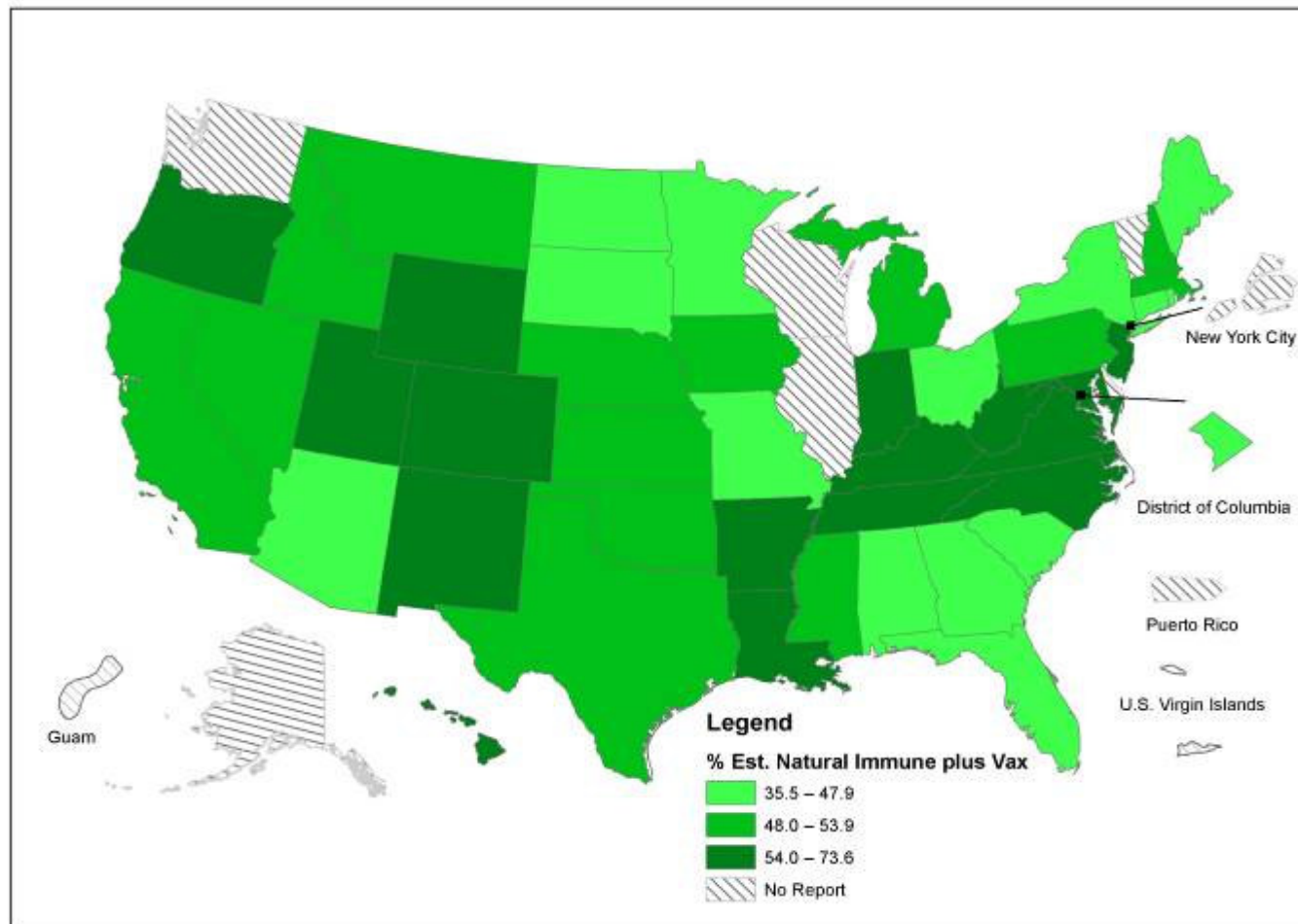


novel 2009-H1N1 DUB – 30 DEC 2009

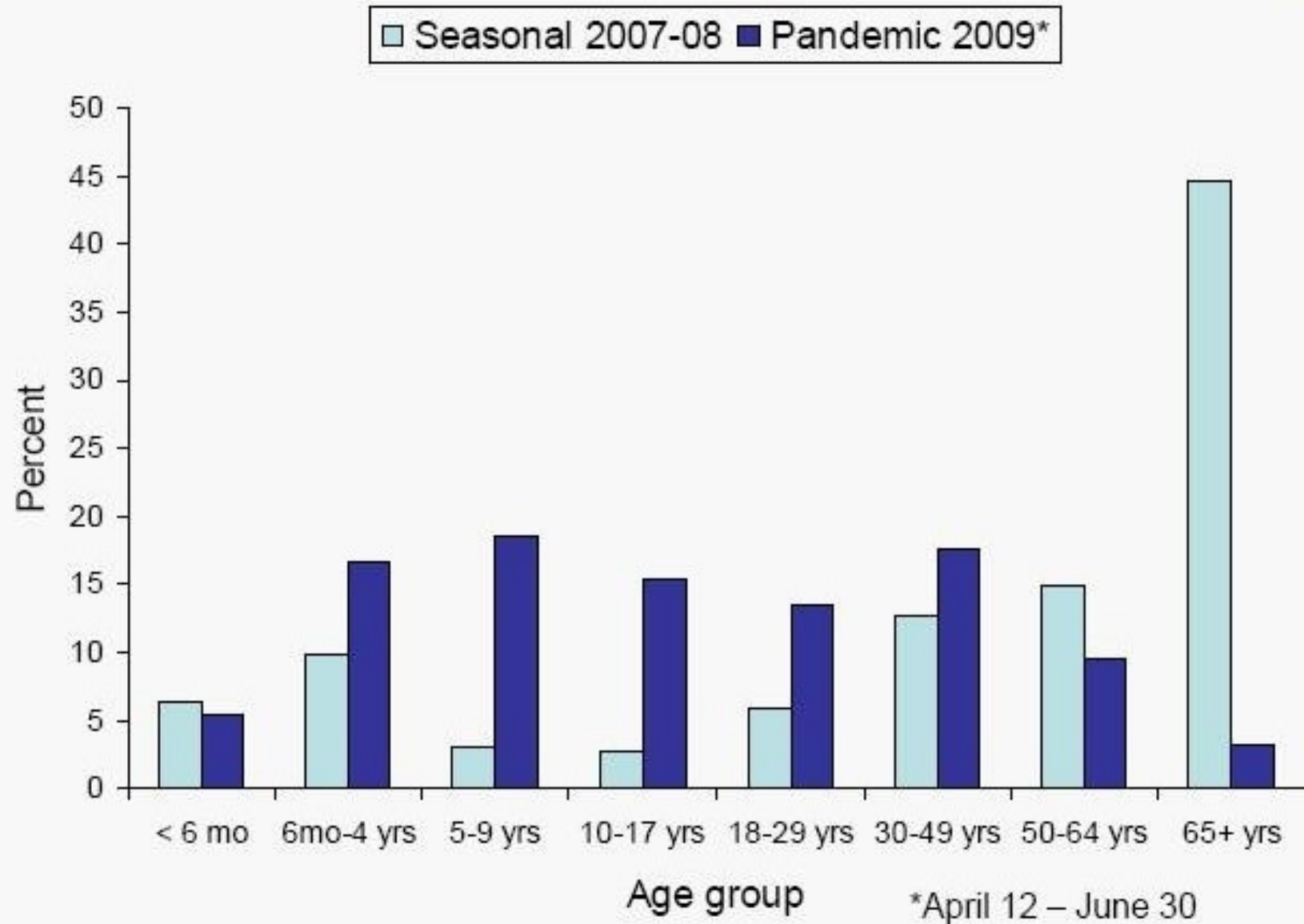
Data are provisional and will not be officially released by the CDC until 1100 EDT

## Epidemiology/Surveillance

### Proportion of Adult Population Immune by Natural Infection and Vaccination

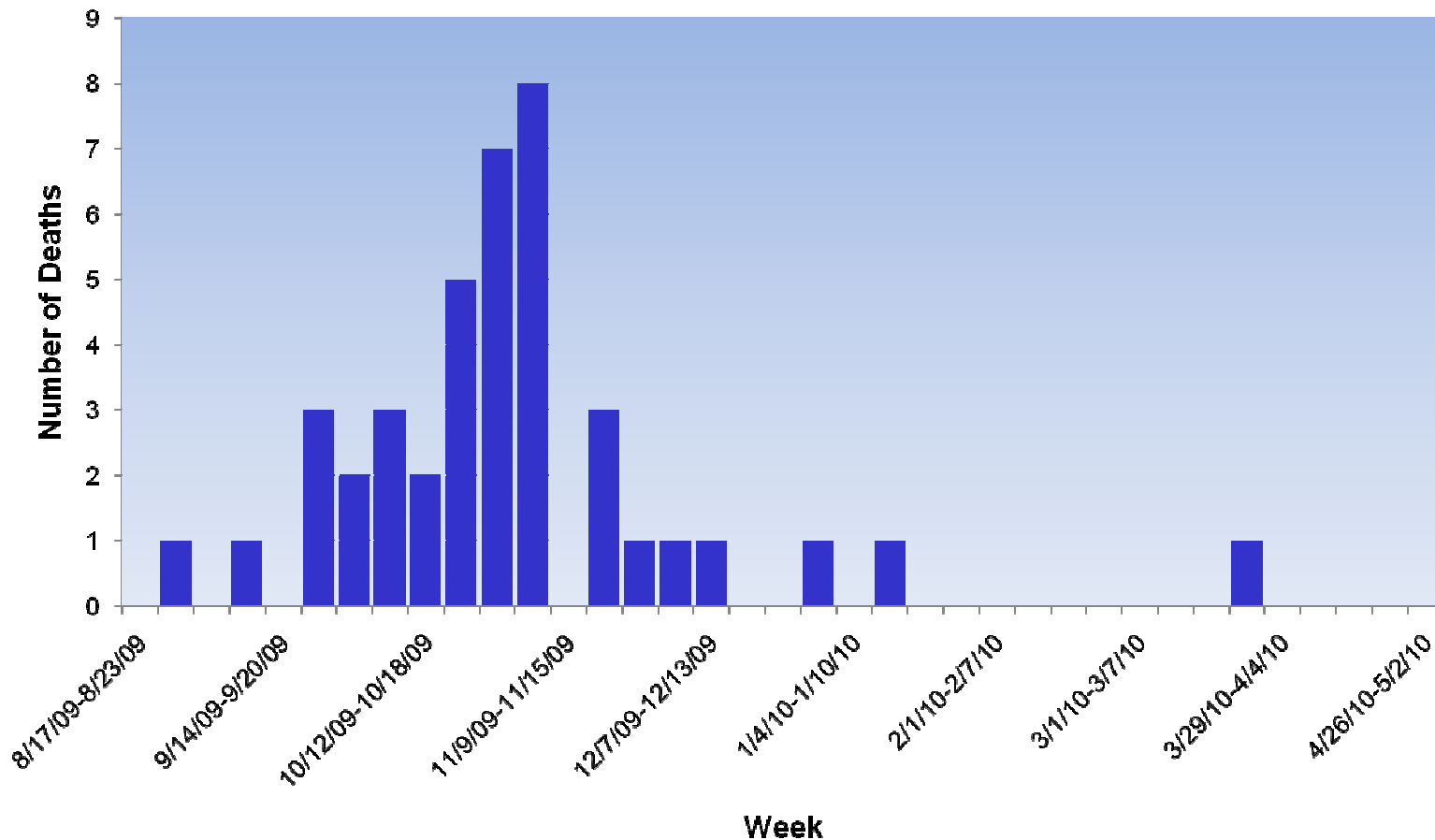


Epidemiology/Surveillance  
Distribution by Age Group of Influenza Hospitalized Cases  
Emerging Infections Program - Pandemic H1N1 -14 JUL 2009

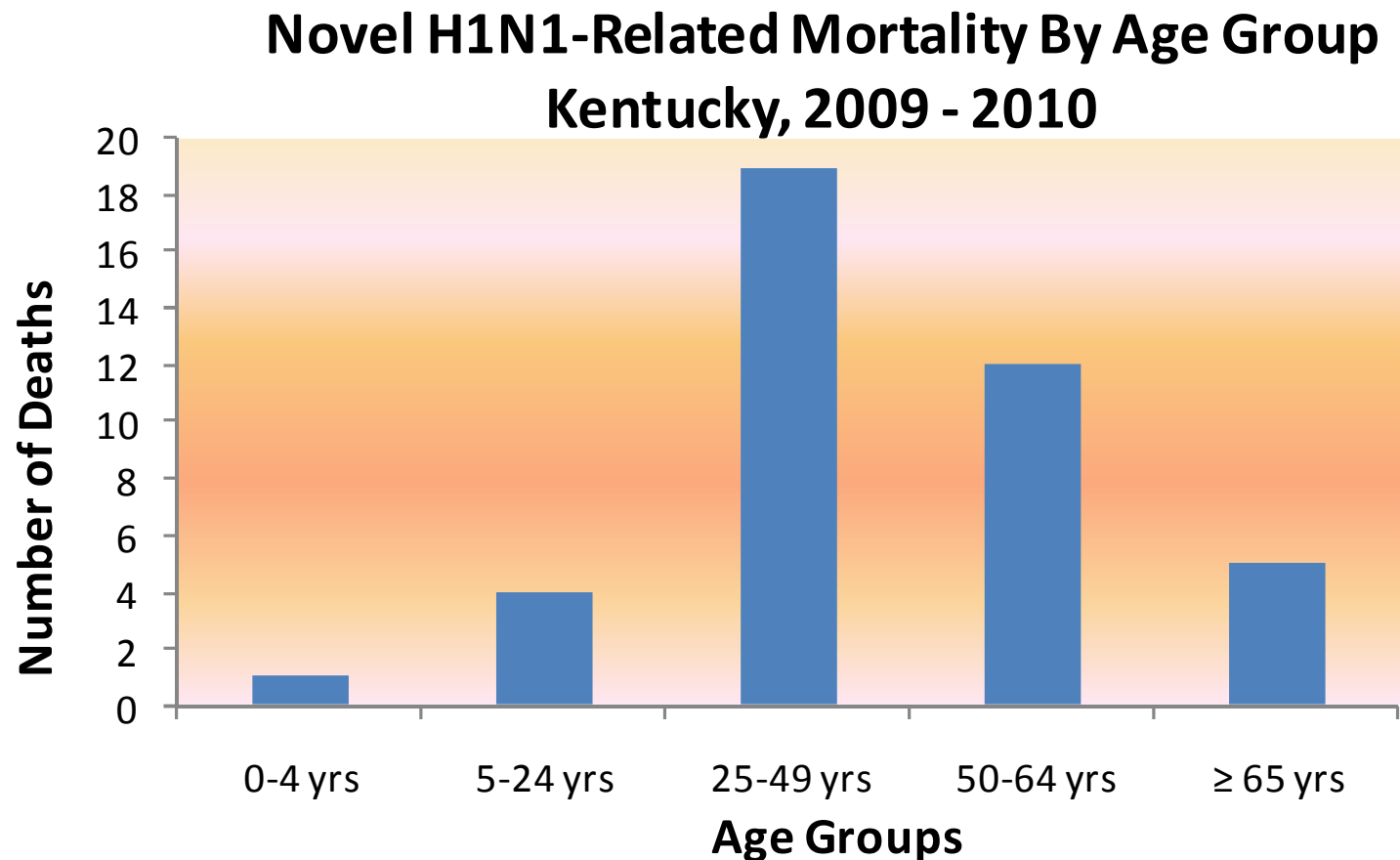


# Kentucky H1N1-Associated Deaths

Novel H1N1-Related Mortality by Week  
Kentucky 2009 - 2010



# H1N1-Associated Deaths by Age



**Epidemiology/Surveillance**  
**novel 2009-H1N1 Hospitalizations Reported to CDC**  
**Underlying Conditions as of 06 JULY 2009**

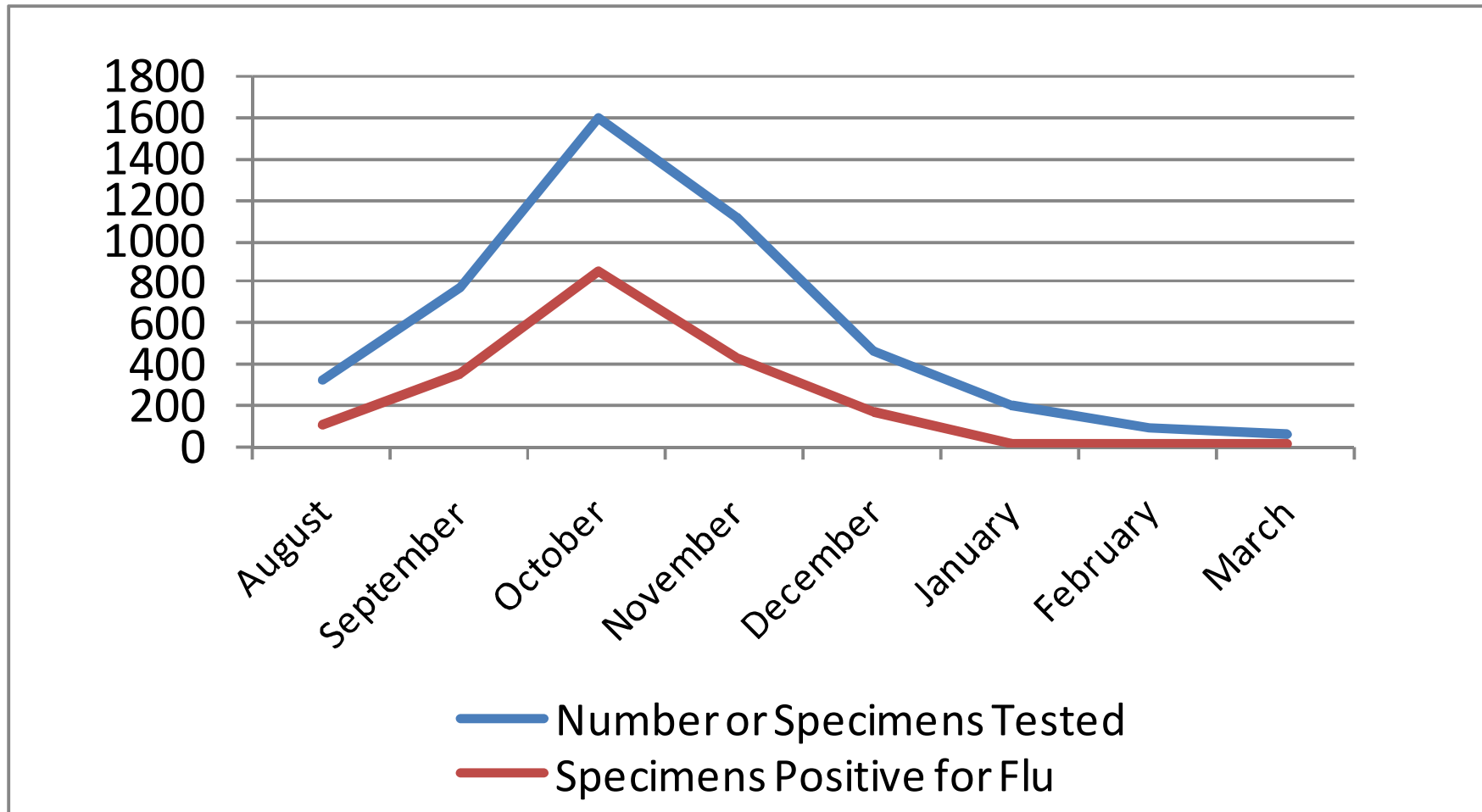


Condition	Prevalence, General US Population	Prevalence, hospitalized H1N1 patients (268)	Prevalence among deaths (160)
Asthma or COPD	8% (asthma) 4% (COPD)	32%	14% (asthma) 25% (COPD)
Diabetes	6%	15%	18%
Immunocompromised		13%	9%
Chronic cardiovascular disease*	7%	14%	19%
Current Smoker	18%	10%	ND
Chronic Renal Disease Stage III and IV	8%	9%	12%**
Neurocognitive disorder		7%	11%
Neuromuscular disorder	0.03%	7%	8%
Pregnant	1%	6%	6%
Seizure disorder	1%	6%	6%
Cancer	4%	3%	10%
Obesity	27%	8%?	41% Morbid 8%

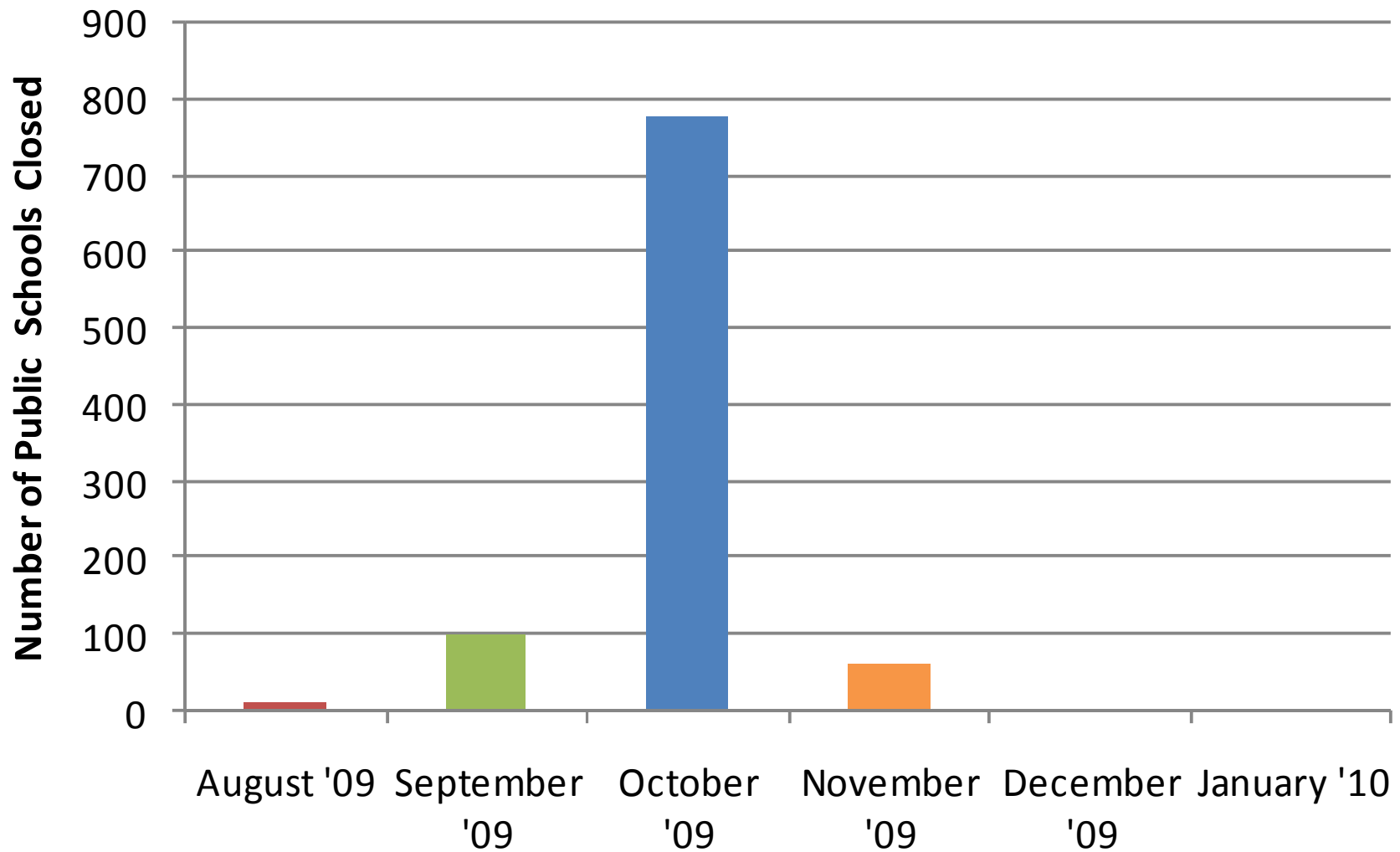
\*Excludes hypertension

\*\*Non-specific renal disease noted in medical history

# Flu Specimen Testing at State Lab



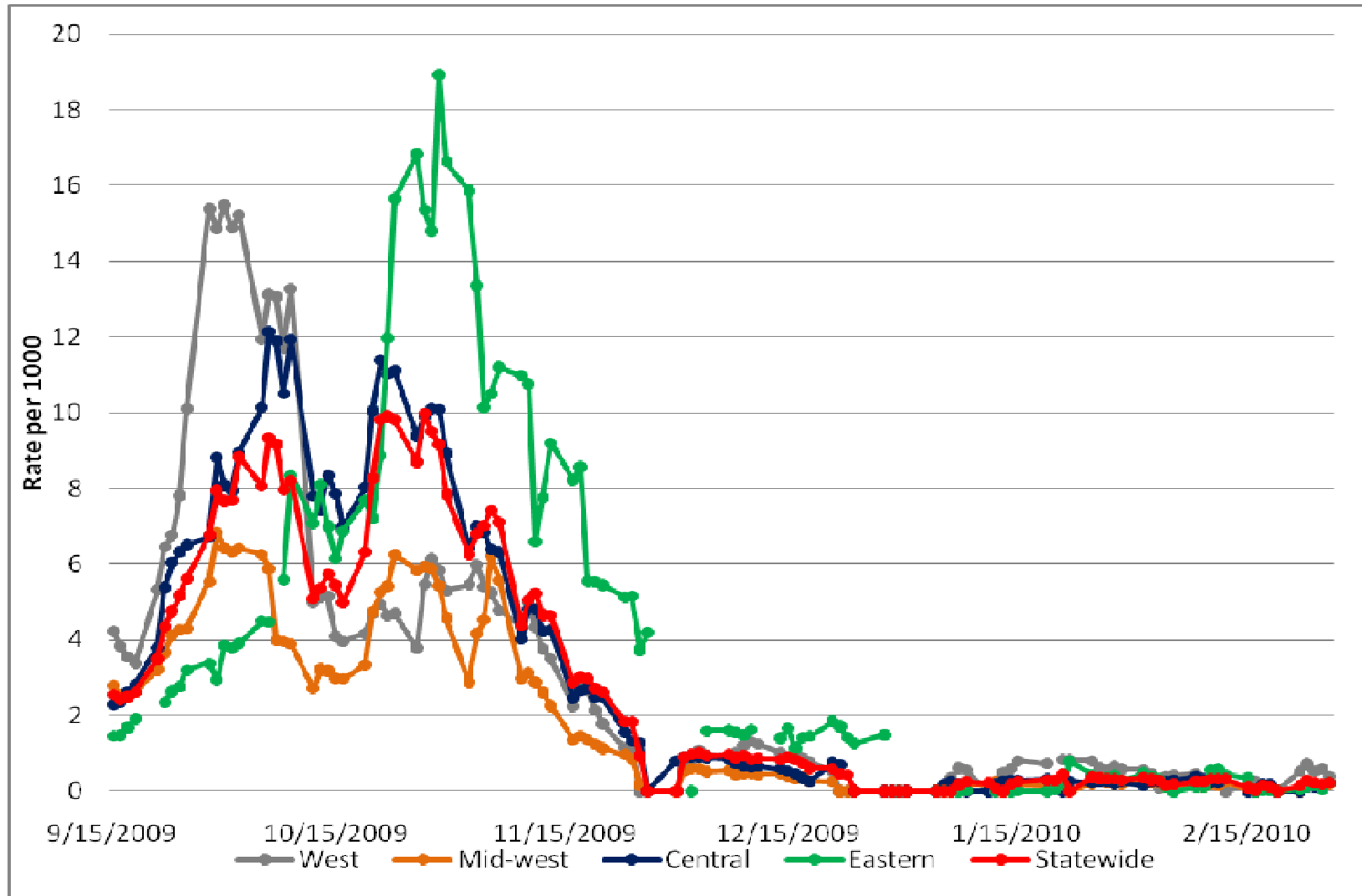
# Kentucky Schools Closed, by Month

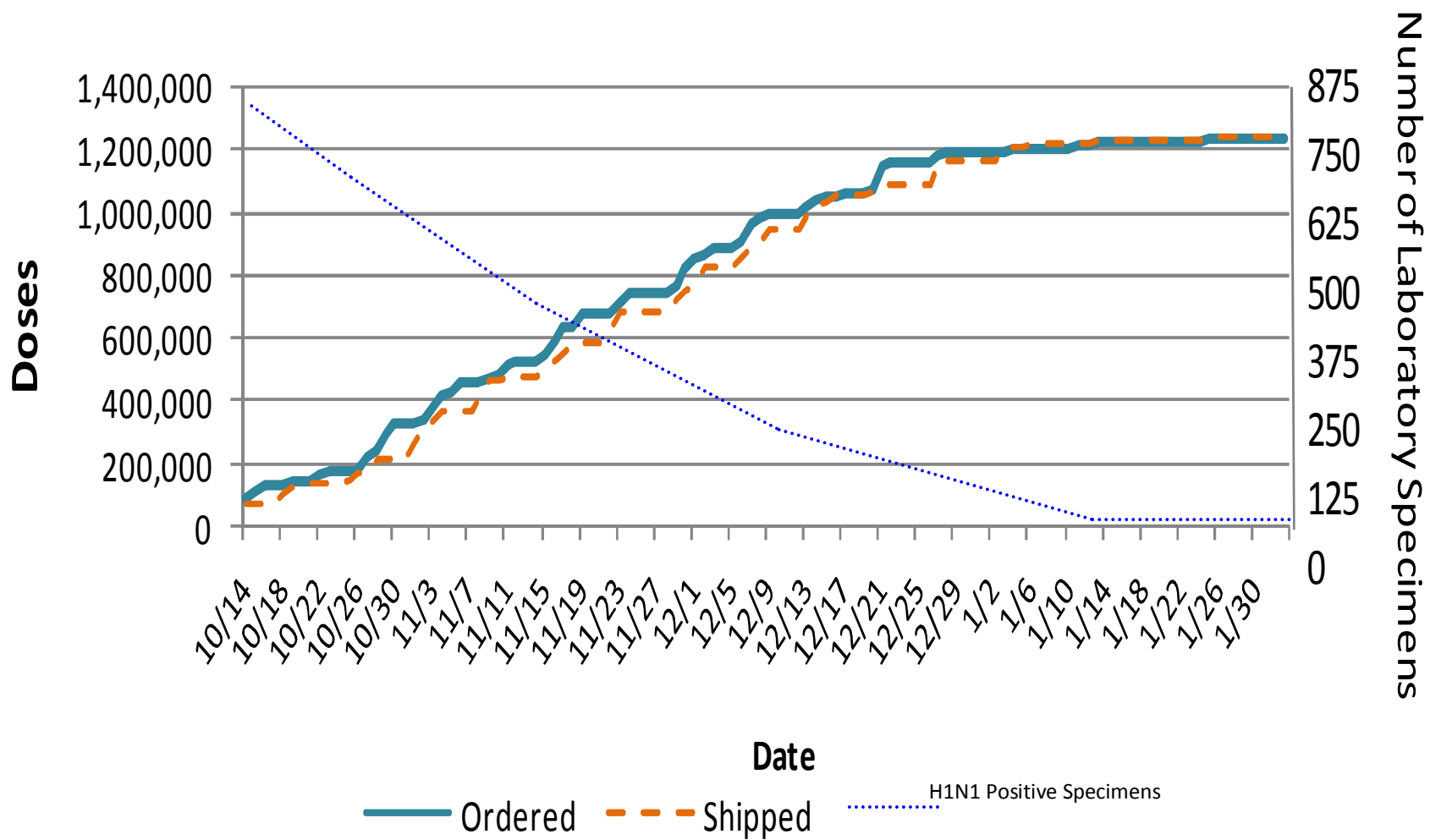


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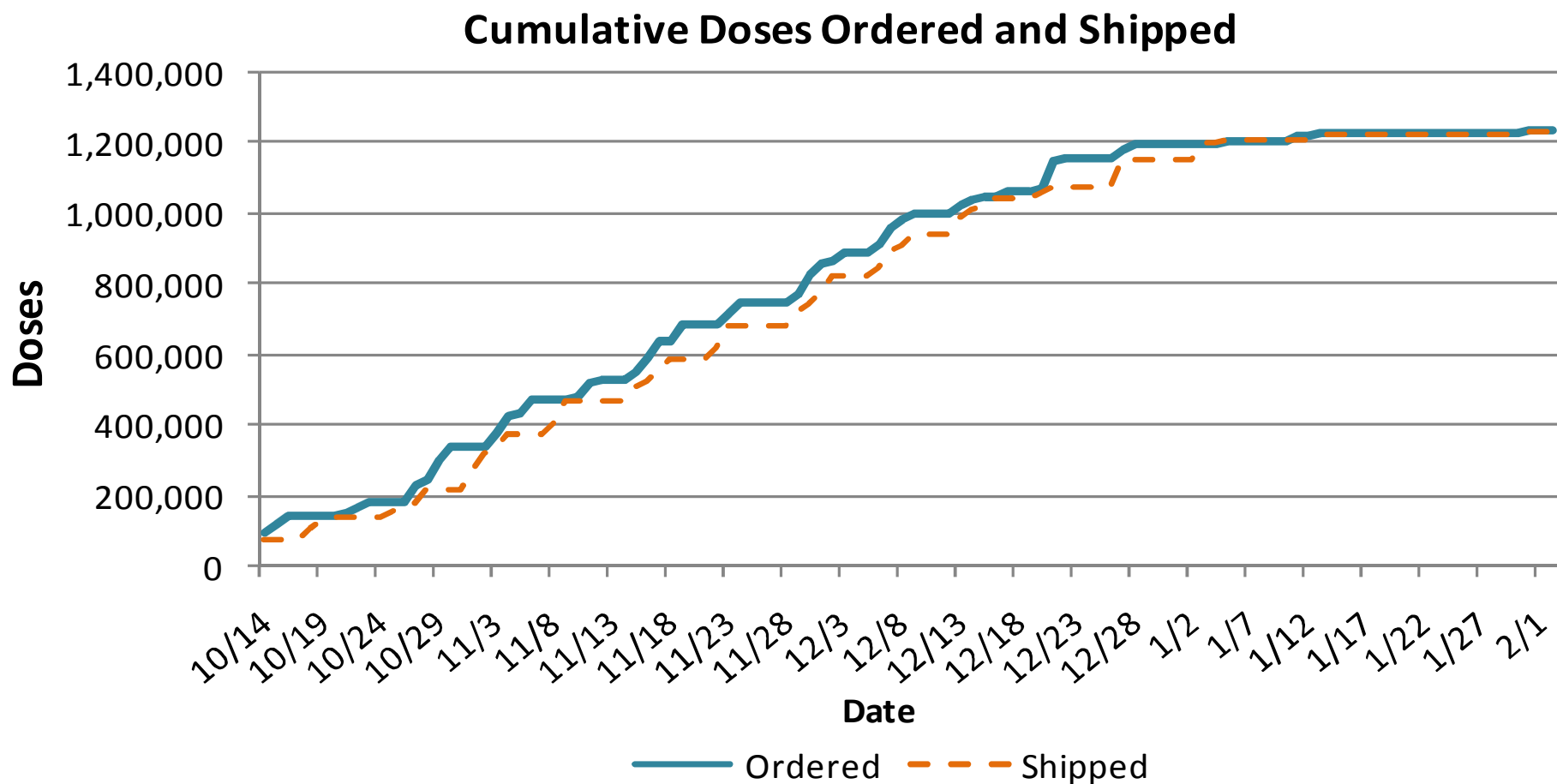
# Mean Rate of Student Absenteeism for Influenza-like Illness, by Region in KY, 2009-2010





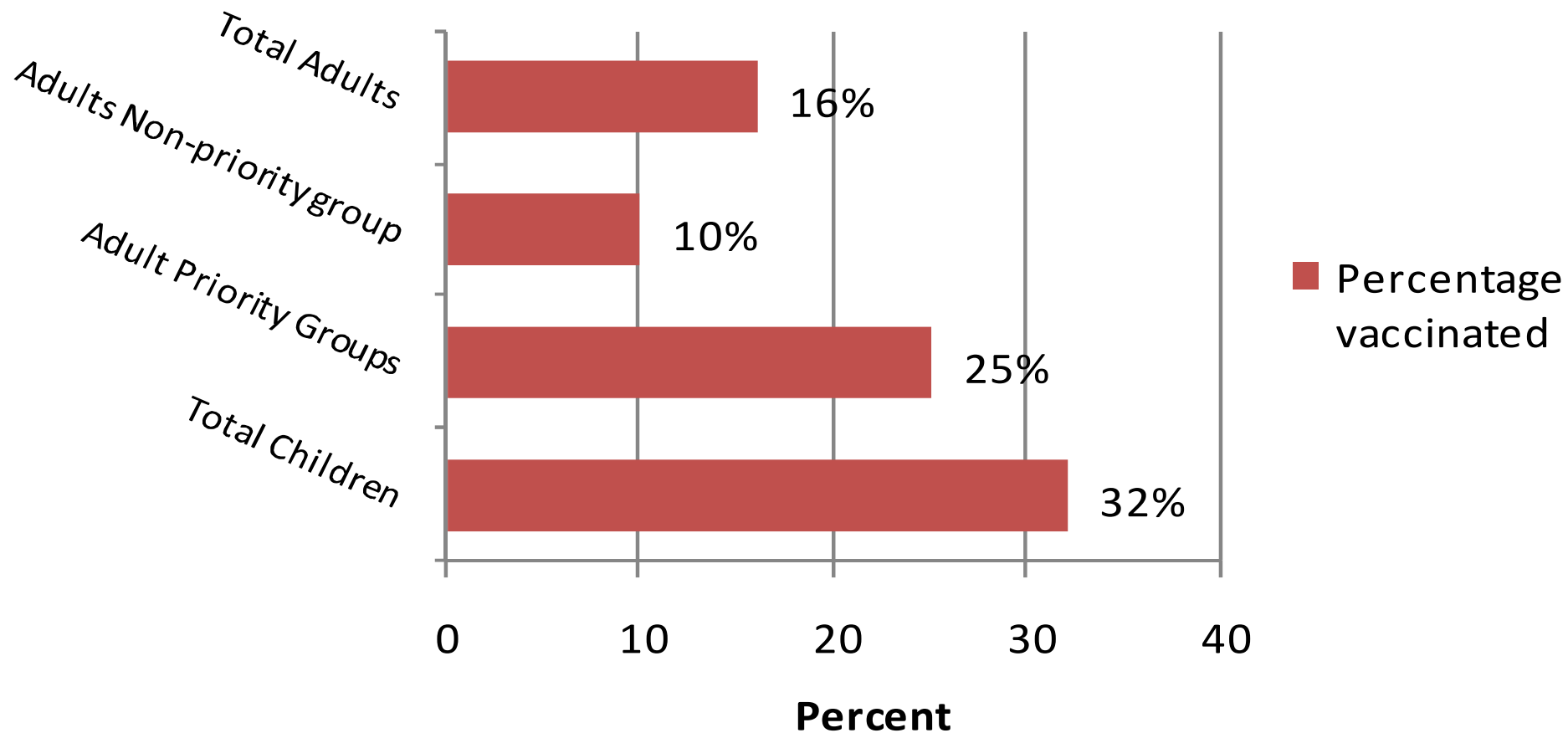
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# H1N1 Vaccine Doses Sent to KY, by Week



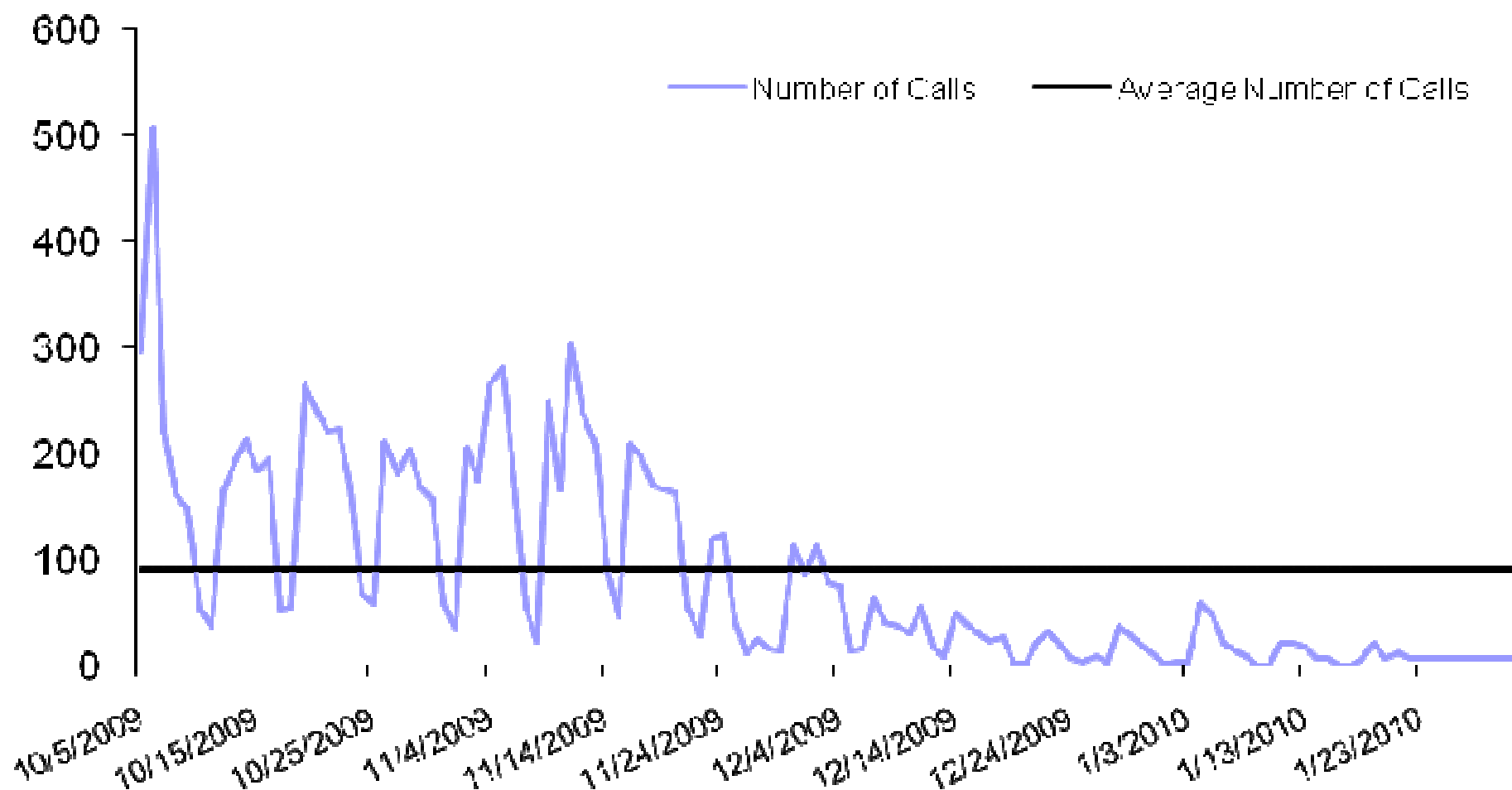
# Self-Reported Vaccine Coverage, mid-December 2009

## H1N1 Vaccination Coverage

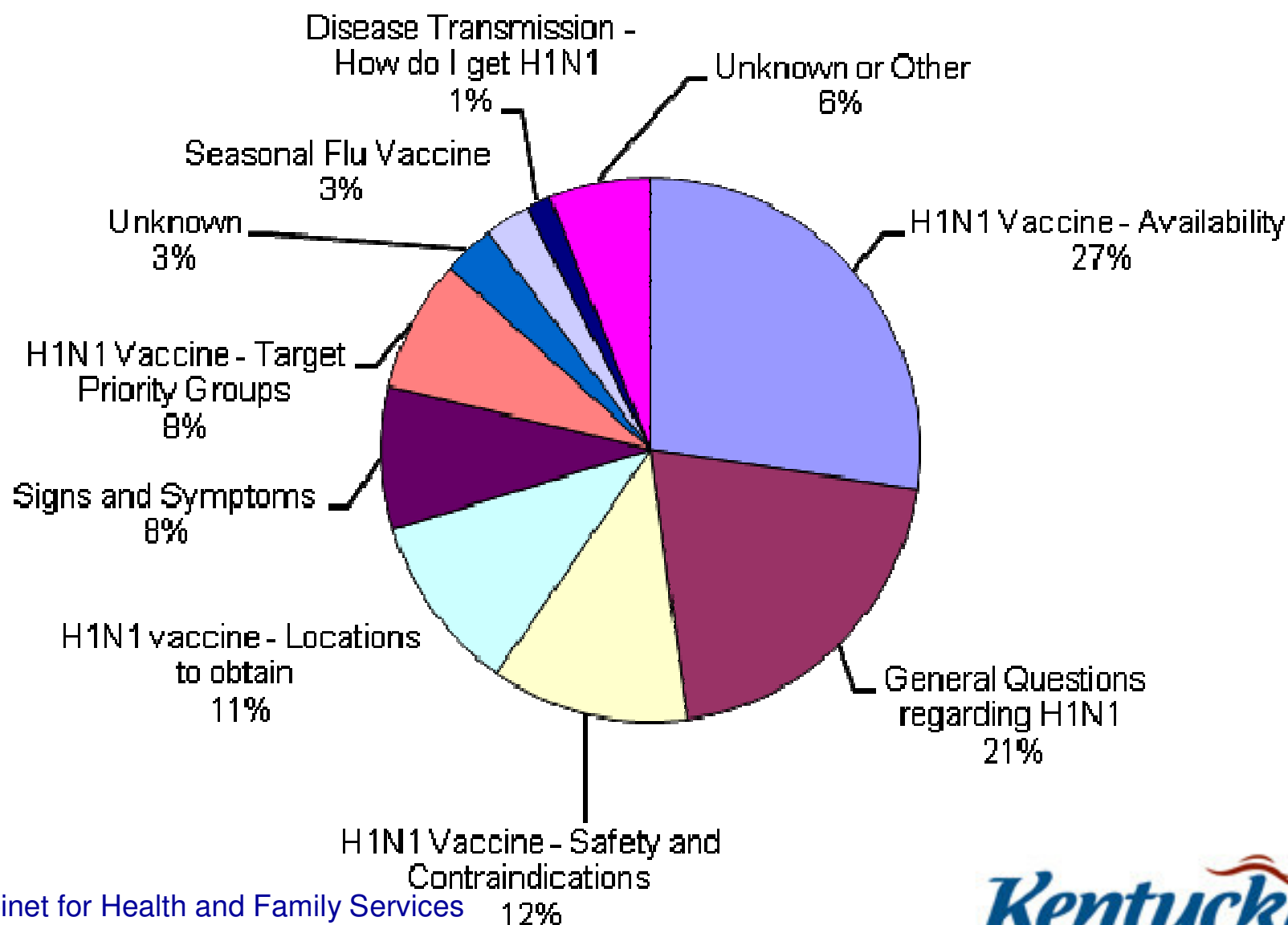


# Calls to H1N1 Public Hotline, Oct. 2009-Jan. 2010

Count of Calls, per Day



# Reasons for Calls to H1N1 Public Hotline

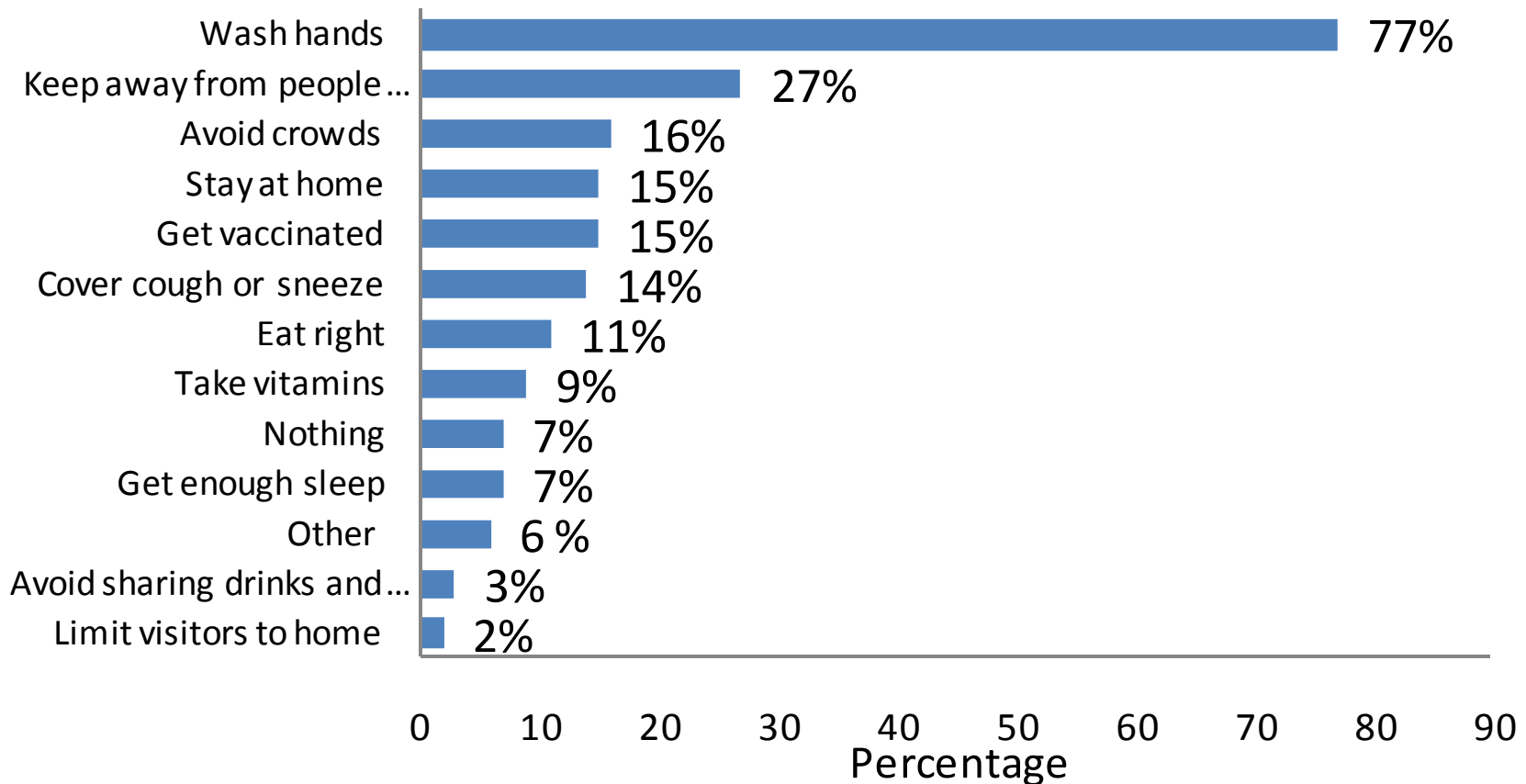


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# Self-Reported Prevention Strategies

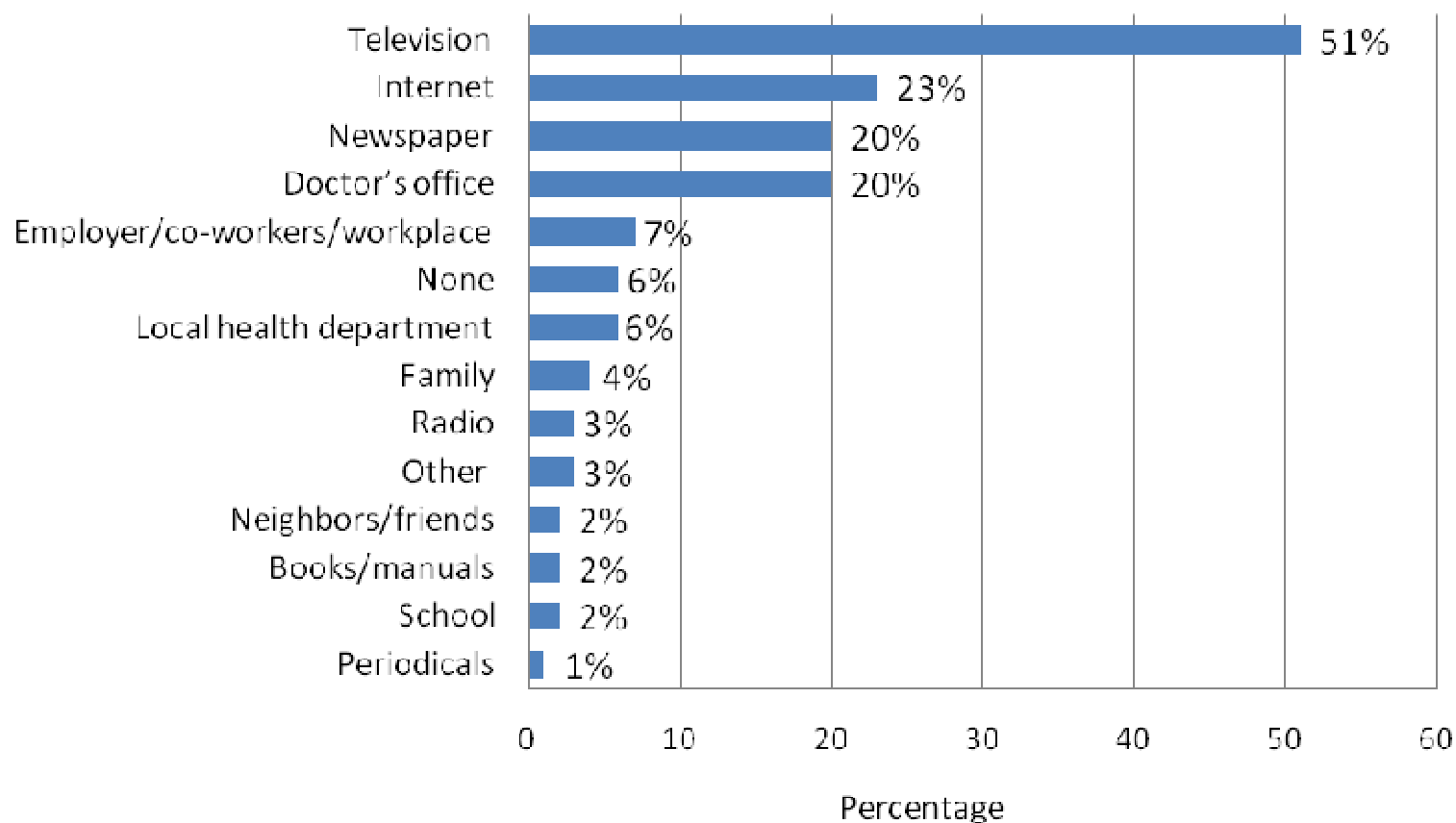
**What are you or your family members doing to avoid getting sick with or spreading the flu?**



Respondents may have stated more than one response. Percentages will not total 100%.

# Self-Reported Flu Information Sources

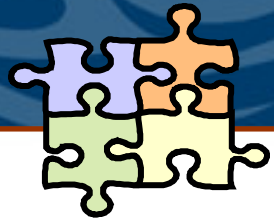
**What sources do you look to most often for information on the H1N1 flu?**



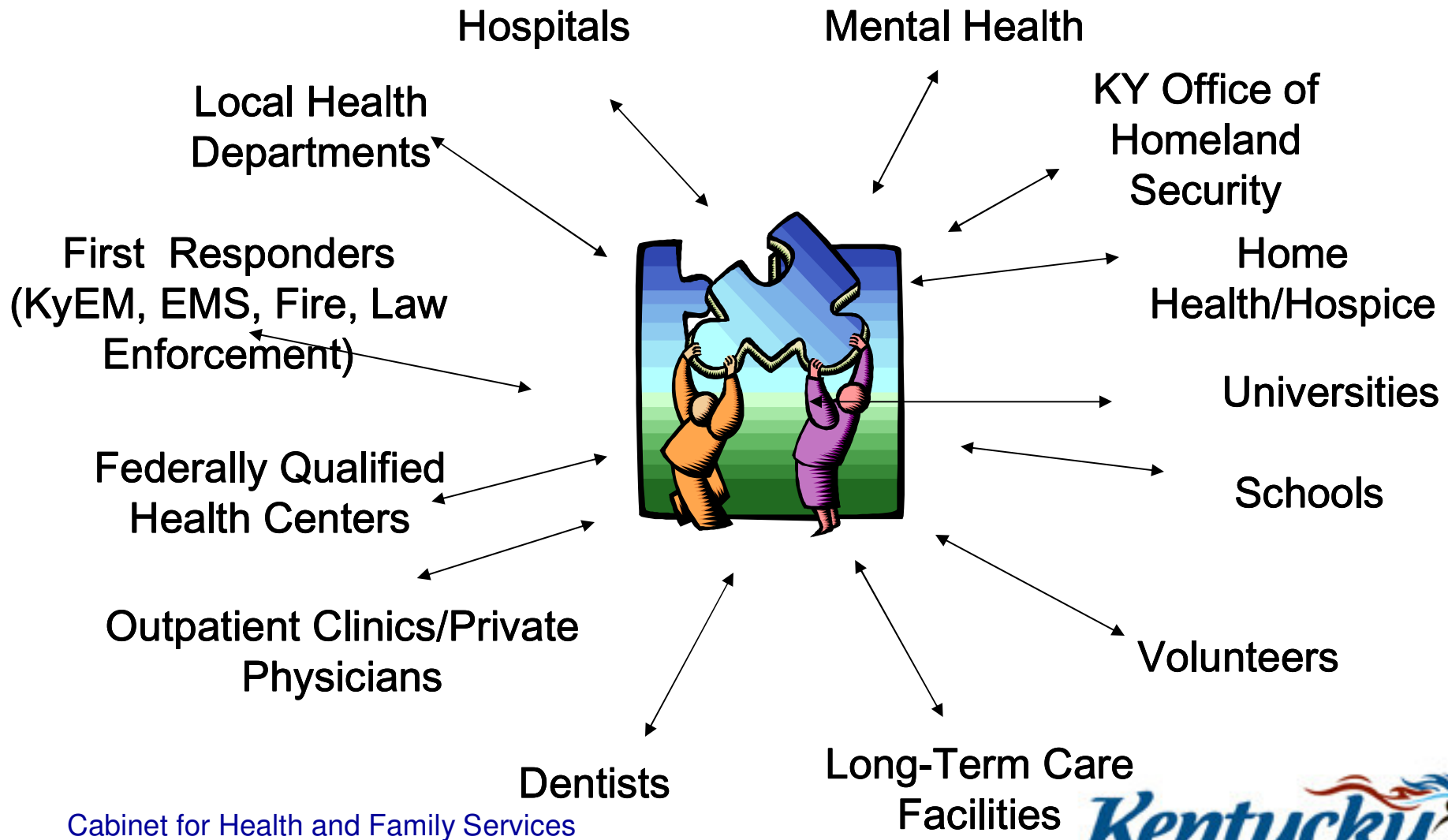
Respondents may have stated more than one response. Percentages will not total 100%.

# Lessons Learned

- Wash your hands
- Cover your cough
- Use hand sanitizer often
- Stay home if ill
- Get a flu shot
- [WWW.Flu.Gov](http://WWW.Flu.Gov)



# Solving the Preparedness Puzzle



Cabinet for Health and Family Services



# QUESTIONS

**[www.flu.gov](http://www.flu.gov)**

**[www.cdc.gov](http://www.cdc.gov)**

**[www.ready.gov](http://www.ready.gov)**

**<http://chfs.ky.gov>**

**[www.healthalerts.ky.gov](http://www.healthalerts.ky.gov)**

**William D. Hacker, MD, FAAP, CPE**

**Commissioner**

**Kentucky Department for Public Health**

**(502) 564-3970**